First Copy

Fleet Owner

VOLUME 21
NO. 3

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

SEPTEMBER
1938

REO

It's LONG LIFE that really counts!

Total Mileage Cost of Truck

Cost per Mile (depreciation)

THE depreciation on a truck costing $1000 is 2c per mile if its life is 50,000 miles.

A unit costing $1500 must operate only an additional 25,000 miles to equal the same depreciation cost.

But the extra $500 will probably give the operator more truckability, lower maintenance cost and better all-around performance. Above all, much more than 25,000 miles of extra service!

Many Reo trucks have operated—and are operating—far in excess of 150,000 miles. Long life is built into every unit by the use of heavy-duty construction engineered to meet the toughest trucking requirements.

Reo's longer life, coupled with low maintenance, assures you *lowest cost per mile.* It costs no more to *buy* Reo; it costs far less to *operate* Reo!

REO MOTOR CAR COMPANY, Lansing, Mich.

STANDARD AUTOMOTIVE ENGINEERING SERVICE

Cuts Fleet Costs 18%

for trucking company

. . . but let Roy Meadows of the Meadows Transfer Company at Des Moines, Iowa, tell you, from his experience, what you can expect from Standard Engineering Service and Standard Oil products.

Mr. Meadows writes:

"While overhauling the motor on our truck No. 13 we decided to check the records as to previous repairs, etc. We learned the following: This truck, a 1933 model, had operated for 315,000 miles on the original crankshaft, connecting rods, pistons and pins. Neither the rods nor main bearings had even been adjusted, yet they were worn so little that .002 was the maximum adjustment made. This remarkable record, we feel, is primarily due to the exclusive use of Iso-Vis motor oil.

"We found the interior of this motor remarkably clean and free from all sludge deposits."

Quoting from other actual records, he says:

"Chassis repair cost dropped 20% since changing to Standard Greases, a year ago.

"In short, Standard products and Standard's Engineering Service have lowered our operating costs 18%."

Call the Automotive Engineer at your local Standard Oil (Indiana) office or write 910 S. Michigan Avenue, Chicago, Ill. Ask to have an engineer explain where and how these savings are made. Naturally his services cost you nothing.

Copr. 1938, Standard Oil Co.

STANDARD OIL COMPANY (INDIANA)

AUTOMOTIVE ENGINEERING SERVICE

LOWE'S

ACHIEVEMENT

Scarcely two years ago the Jenkins Flexible Capless Tire Valve made its appearance. Radically different, it was the first improvement since the original valves on bicycle tires. Tube manufacturers were quick to appreciate the safety, increased tire mileage and labor savings which this simple fool-proof construction made possible. ¶ Today, Jenkins Tire Valves give millions of miles of daily unfailing performance on all types of vehicles, on every kind of road, in hot and cold climates. Specify Jenkins Tire Valves on your next order.

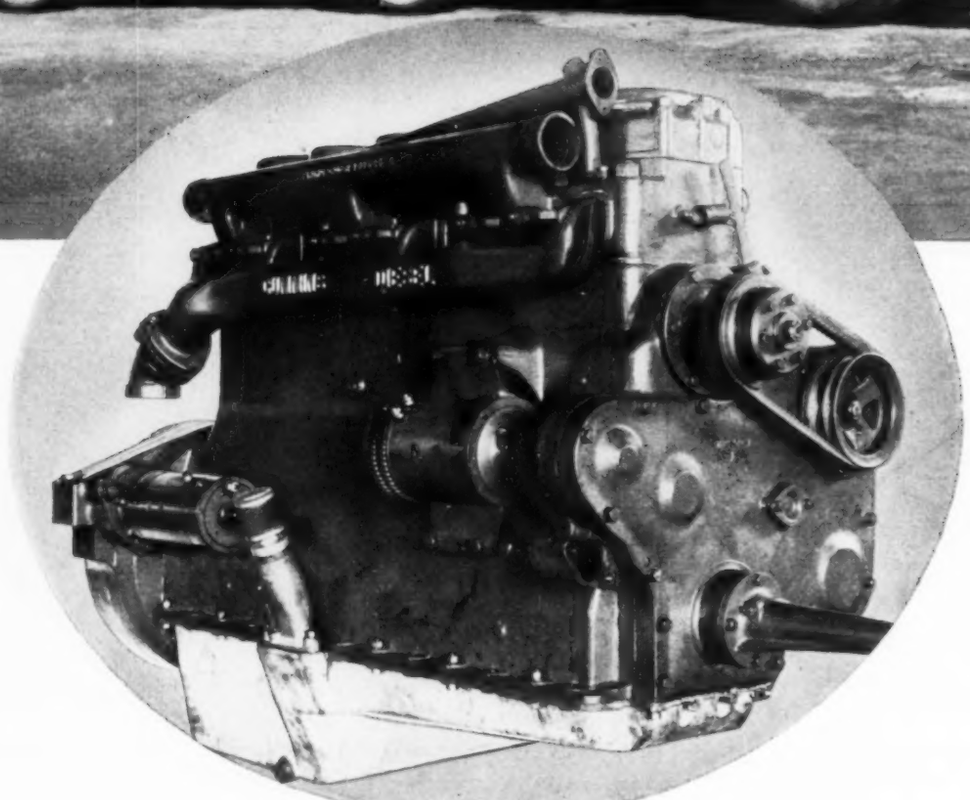
JENKINS BROS., BRIDGEPORT, CONNECTICUT

JENKINS FLEXIBLE CAPLESS TIRE VALVE

GUARANTEED LEAK-PROOF FOR THE LIFE OF THE TUBE

CUMMINS DIESEL

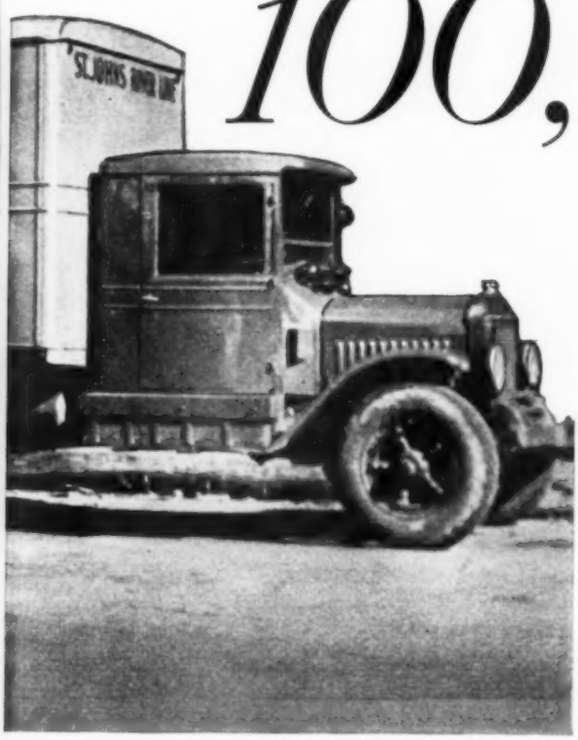
Cummins Diesel-powered truck and trailer, operated by the St. Johns River Line Company, Jacksonville, Fla., hauling general freight.



TEXACO
REG. T. M.

TEXACO

OPERATES *100,000 MILES*



. . ."without removing the head"

AND NOT ONLY THIS—when opened up last January 24, this Cummins Diesel was found to be CLEAN, while the greatest wear on cylinder liners was only .006 inch.

Here's the important point—ever since it went into service in 1936, this engine has been lubricated exclusively with Texaco Ursa Oil.

To keep *your* Diesel engines in top condition, use Texaco Ursa Oil Series which can be obtained through any of 2108 Texaco warehouse plants. For address of nearest one write:

The Texas Company
135 East 42nd Street, New York City

Cummins Diesel Engine HB-4 like that installed in above truck-trailer combination. This engine and all other Cummins models can be perfectly lubricated with Texaco Diesel Lubricants.

Ursa Oils FOR AUTOMOTIVE DIESELS

Have you tried this NEW method of cleaning motor INTERIORS?

Want to step up motor efficiency? Then try this simple, effective method that so many fleet owners have already applied successfully:

First drain oil from crankcase while warm. Fill crankcase with mixture made up with Oakite Composition No. 9 and flushing oil. Run motor for one hour at idling speed. Flush out. The partially decomposed oil, carbonaceous materials and gums which formed on interiors and crankcase will be gone. Fill up crankcase with new oil . . . start motor. Notice how much smoother it runs!

FREE Booklet Gives Details

Write for new FREE booklet describing method in detail and how muck and grease can easily be removed with same material from EXTERIOR of motors. There is no obligation . . . merely drop us a line and booklet and data will come to you by return mail. Won't you write today?

●

Manufactured only by

OAKITE PRODUCTS, INC., 52G Thames St., NEW YORK, N. Y.

Branch Offices and Representatives in all Principal Cities of the U. S.

OAKITE *Certified* CLEANING

MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

Charter CCA Member

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners, who Operate or Direct their own Service, and devoted to the Better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

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IT'S HOT NEWS WHEN A TRUCK TIRE RUNS COOL

ALLIED
VAN LINES is an organization of some 550 agent-members operating more than 900 fast modern vans in coast-to-coast service. Heavy loads and high speeds offer no tire problem to Allied drivers. Their Goodrich Silvertowns are protected against "tire-killing" heat.
IT LICKS SPEED PROBLEMS
IT LICKS LOAD PROBLEMS
IT COSTS NO MORE

New Goodrich Tire Licks Heat Problem—Practically Eliminates Sidewall Breaks

● You can now get greater truck tire mileage than ever before! Greater freedom from road delays and premature failures!

Thanks to Goodrich engineers you can buy a new kind of truck tire—a tire that does not get dangerously hot. With the heat problem licked you can forget most of your tire worries.

It's excessive heat that kills off tires while they're still young. Rubber wilts under the frying-pan heat generated by today's high speeds and heavy loads. Sustained high temperatures make tires "grow," cause blow-outs, sidewall breaks.

NEW TYPE CORD USED

Goodrich gives you a cooler-running tire with a body of the newly-developed Hi-Flex Cord. This cord retains its strength and elasticity. It doesn't stretch and become longer, permitting the tire to "grow." Smaller in diameter, more compact, Hi-Flex Cord can be surrounded with more cooling, insulating rubber. Because of the cord's amazing properties, it is possible to build a super-strong tire, yet a tire that does not depend on thickness alone for its strength. It's a compact tire that runs cooler—stays below the temperature danger point.

EXCLUSIVE WITH GOODRICH

Only Goodrich offers you Hi-Flex Cord, and only Goodrich offers you this money-saving combination:

1. **PLYFLEX**—a tough outer ply which distributes stresses throughout the tire and prevents local weakness.
2. **PLY-LOCK**—a new method of locking the plies about the beads, anchoring them in place.
3. **HI-FLEX CORD**—full-floated in live rubber—cord that retains its strength and protects the tire against getting dangerously hot.

No wonder we can say that sidewall breaks are practically eliminated with Goodrich Silvertowns!

NO EXTRA COST

Why not follow the lead of Allied Vans? Put these tires on your trucks and put an end to worries about peak loads and high speeds. You can handle any haul safer and cheaper. And remember—you will get premium tire mileage without paying a premium price.

Phone a Goodrich Dealer or Goodrich Silvertown Store for prices.

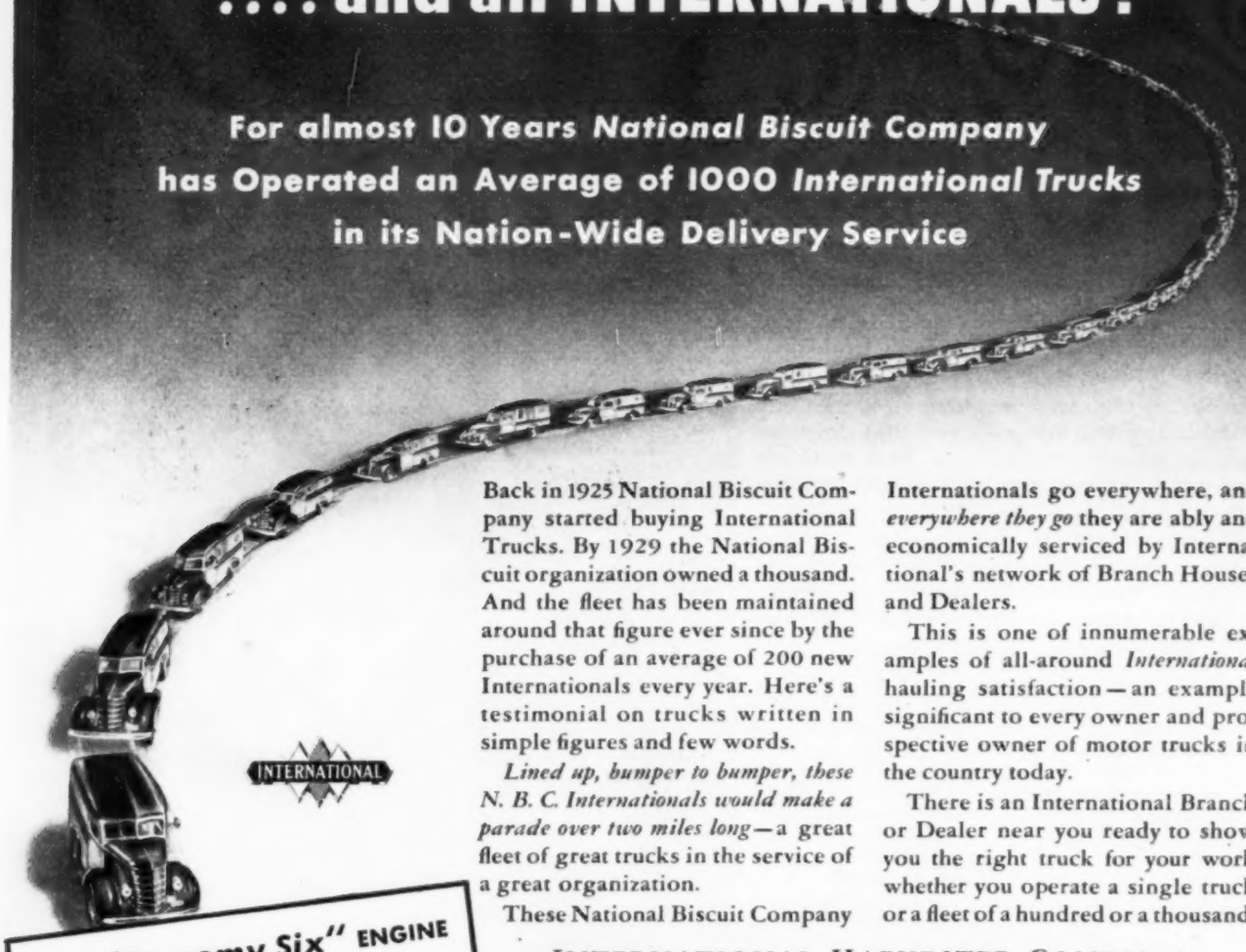
Goodrich *Triple Protected* **Silvertowns**

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

More than 2 miles of Trucks

.... and all INTERNATIONALS!

For almost 10 Years *National Biscuit Company*
has Operated an Average of 1000 *International Trucks*
in its Nation-Wide Delivery Service



Back in 1925 National Biscuit Company started buying International Trucks. By 1929 the National Biscuit organization owned a thousand. And the fleet has been maintained around that figure ever since by the purchase of an average of 200 new Internationals every year. Here's a testimonial on trucks written in simple figures and few words.

Lined up, bumper to bumper, these N. B. C. Internationals would make a parade over two miles long—a great fleet of great trucks in the service of a great organization.

These National Biscuit Company Internationals go everywhere, and *everywhere they go* they are ably and economically serviced by International's network of Branch Houses and Dealers.

This is one of innumerable examples of all-around *International* hauling satisfaction—an example significant to every owner and prospective owner of motor trucks in the country today.

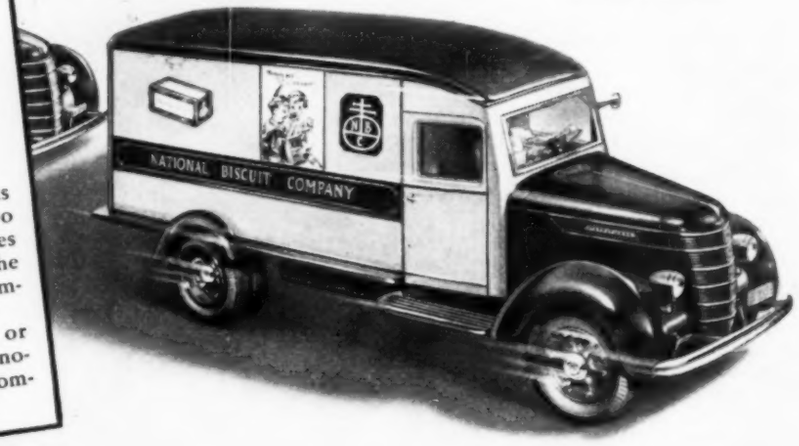
There is an International Branch or Dealer near you ready to show you the right truck for your work whether you operate a single truck or a fleet of a hundred or a thousand.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
180 North Michigan Avenue Chicago, Illinois

NEW "Economy Six" ENGINE SAVES ON LIGHT-DUTY JOBS

International Harvester builds three of its lighter trucks with 6-cylinder engines in two sizes as optional equipment. This enables you to choose an International Truck in the ½-ton to 1½-ton field for maximum performance and economy in your kind of work.

Ask the International Truck dealer or Company-owned branch to make a diagnosis of your operating conditions and recommend the best engine for your service.



INTERNATIONAL TRUCKS

VOL. 21
NO. 3

FLEET OWNER

SEPTEMBER
1938

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

DIESEL DATA

● Somehow or other, the word "Diesel" seems to cause pretty nearly everybody to perk up his ears and listen, any time of the day or night that it may be mentioned. . . . The following paragraphs should serve, therefore, to keep you somewhat up-to-date. . . . We have it on good authority (a salesman's promise) that General Motors Truck will have several new Diesel-powered trucks at the New York National Truck Show, which opens on Armistice Day—November 11th, in case you forgot the date. . . . They plan, so we are told, to use the "71" series of Diesel engines, in 3, 4 and 6-cylinder sizes. These are the engines which were illustrated and described on page 43 of our February issue of this year—remember, when we scooped everybody else with this announcement? . . . The new GMC Diesel-powered trucks will start at 2½-tons and will go up to even the biggest fellows—and God help us if this prediction fails to materialize. . . . Cummins Diesels are going great guns, so they tell us. The factory plans to double its present production during the next twelve months—in spite of the fact that they are now operating their largest production-schedule in the history of Cummins. . . . They will shortly bring out a new smaller Diesel, in four and six-cylinder sizes, having a bore and stroke of 4 x 5 inches, and a further improvement in the fuel system, which promises to eliminate all smoke and odors. . . . The improved fuel system can also be adapted to all older Cummins engines now in service, at small cost, so it is announced. . . . Cummins Diesel engines (if you have read the announcement on page 58 of our August issue) are powering the 50 new Mack trucks recently ordered by Colonial Sand & Stone Company, New York City. . . . Sixty-two more Cummins Diesels were ordered by this same outfit, to be used as replacements in *old* trucks, making a total of 112 engines at one time, which is a *lot* of engines—Diesel or gasoline—any way you care to figure it out. . . . Three of the largest contracting companies in New York City have also given Cummins orders to completely Dieselize their fleets, according to Cummins officials, which is "something," in view of present unstable economic conditions. . . . So much for that. . . . As we told you previously, a flock of Diesel-powered buses is being used in New York City by the Surface Transportation Company—these are Diesel-electrics. . . . Several of the new GMC Diesels are being tried out in motor-coach service in large cities of the country, but little has been published about this to-date.

. . . To those of you who never seem to see any Diesel-powered trucks on the roads, let us assure you that they really exist—and run. . . . Just drive your car up the Albany Post Road, from New York to Albany, and you will meet, and pass (if your car is fast enough) many Diesel-powered trucks, which can be distinguished by the odor. . . . We are not saying that the odor is objectionable, or anything like that, but it is there, just the same. . . . In a properly adjusted Diesel it is not bad, but in one that is not functioning efficiently, you will notice much odor and some smoke. . . . Yours Truly *knows* about this, having just made a vacation trip covering several thousand miles. . . . Most of the Diesel jobs he has seen were used in milk-tankers, carrying milk from farm to city. It's rather strange that the milk-men seem to have adopted Diesels so strongly. It's also interesting that they seem to have concentrated upon one make of Diesel. . . . Which make? We ain't-a-sayin'. . . . You will have to read the advertising pages to find out. . . . The picture which accompanies this so-called editorial was taken in the shops of Colonial Sand & Stone Company. . . . It shows one of the Commins 4-cylinder Diesel engines being installed in an old favorite—an AC (bull-dog) Mack which has given miles and miles of hard service and is good for many, many more. . . . Don't mention it, Mr. Horine. . . . Before we forget it, it is only fair to point out that up to two years ago, Diesel-powered dump trucks were considered someone's idle dream. Contractors had contended that because of the short hauls usually made by dump trucks, Diesel power would not prove economical in proportion to its records on high-speed, interstate freight transfer. . . . However, experiments made by the aforementioned concerns

(*Please turn to page* 10)

●

H. Clay Fischer
Editor

●

The Editor's Column » »

(Continued from Page 9)

INFLUENCE OF ADVERTISING

THE INFLUENCE of advertising was well demonstrated recently when a 10-foot replica of AC Spark Plug Company's "Cleenie the Plug" took part in a national convention parade held in Cleveland. . . . Although not a word of AC identification appeared on Cleenie, many parade spectators hilariously shouted "Here comes Sparky the Plug." . . . "Cleenie" was created five years ago to sybolize spark plug cleaning service, and it is estimated more than 100 million spark plugs are cleaned annually by the 70,000 Registered AC Cleaning Stations. . . . AC's advertising manager, Earl McGinnis, says Cleenie's likeness appears millions of times every week in AC advertising copy which is spread throughout the nation.

in metropolitan New York, and by general contractors on large dam jobs, covering periods of a few months to two years, have proved the practicability and economy of the Diesel for short-haul work. . . . At least it would seem so, because nobody buys a lot of Diesel engines for trucks, without knowing at least *something* of what it is all about. . . . Future developments in Diesels will be handed out to you on our usual platter, just as fast as they occur, rest assured.

•

$500,000 WORTH OF TRUCKS

● That "largest single order" for Diesel-powered motor trucks, about which you have probably heard plenty by this time, is shown being signed by Generoso Pope, president of the Colonial Sand & Stone Company, New York, as F. F. Stanniford, vice-president of Mack Trucks, Inc. looks on. . . . The order calls for 50 new Mack

trucks, all to be powered with Cummins Diesel engines. . . . They will be used in Metropolitan New York. . . . Each truck will have 10 speeds forward and 2 reverse. . . . The order totals approximately $500,000, which should be "news" in *any* language—Diesels or not. . . . Mr. Pope says that his placing an order of this size should prove conclusively to you that business has turned around and is now going upward. . . . We had a mischievous temptation to entitle this little item "Generous Generoso"—but just let's not get personal.

p.s.—Just as we finished writing this item, along came word that Mr. Pope placed another order with Mack—this time for 19 more Diesel-powered trucks to cost approximately $150,000. . . . They will be used to haul concrete and each will have a capacity of 6 cu. yards. . . . The concrete will be mixed as the truck is en route to its destination. . . . This makes Mr. Pope's order total $650,000, simple arithmetic tells us—and the total of new trucks comes to 69. . . . This kind of buying action speaks louder than all of the "prosperity" statements ever uttered. . . . Don't you think so?

•

FIND THE PROFITS?

● Here's another to add to your book of maxims: *"Profits are often hidden away in a trucking company's cost records, rather than found in the sales records".* . . . Trucking companies are beginning to agree with the man who said it first, we understand; how true this is in some operations.

•

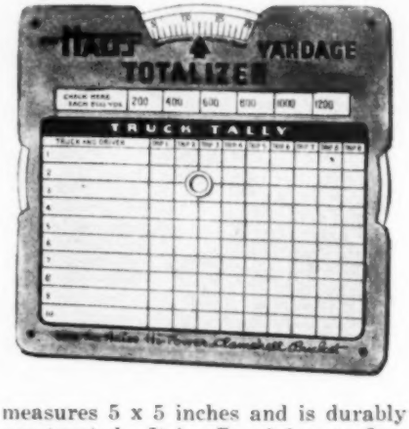
GOVERNOR GOVERNOR?

● A new device is on the way—basically a carburetor attachment to be used in conjunction with governors, for which fuel economies of from 15% to 25% are claimed, using standard carburetors. . . . Ford and Chevrolet models are now ready. . . . The maker is Hoof Products Company, 162 N. Franklin St., Chicago, Ill., well-known governor manufacturer. . . . This carburetor attachment does not change the carburetor in any way, but simply provides against waste of fuel by the heavy-footed driver. . . . Just as soon as complete details are available, you will see them in our "New Products" department. . . . If you are unduly curious, drop a line to Hoof, or use the post-card on page 52, just writing across the face of it *"Interested in new governor device."* . . . We'll be glad to pass it along to the manufacturer, without charge.

•

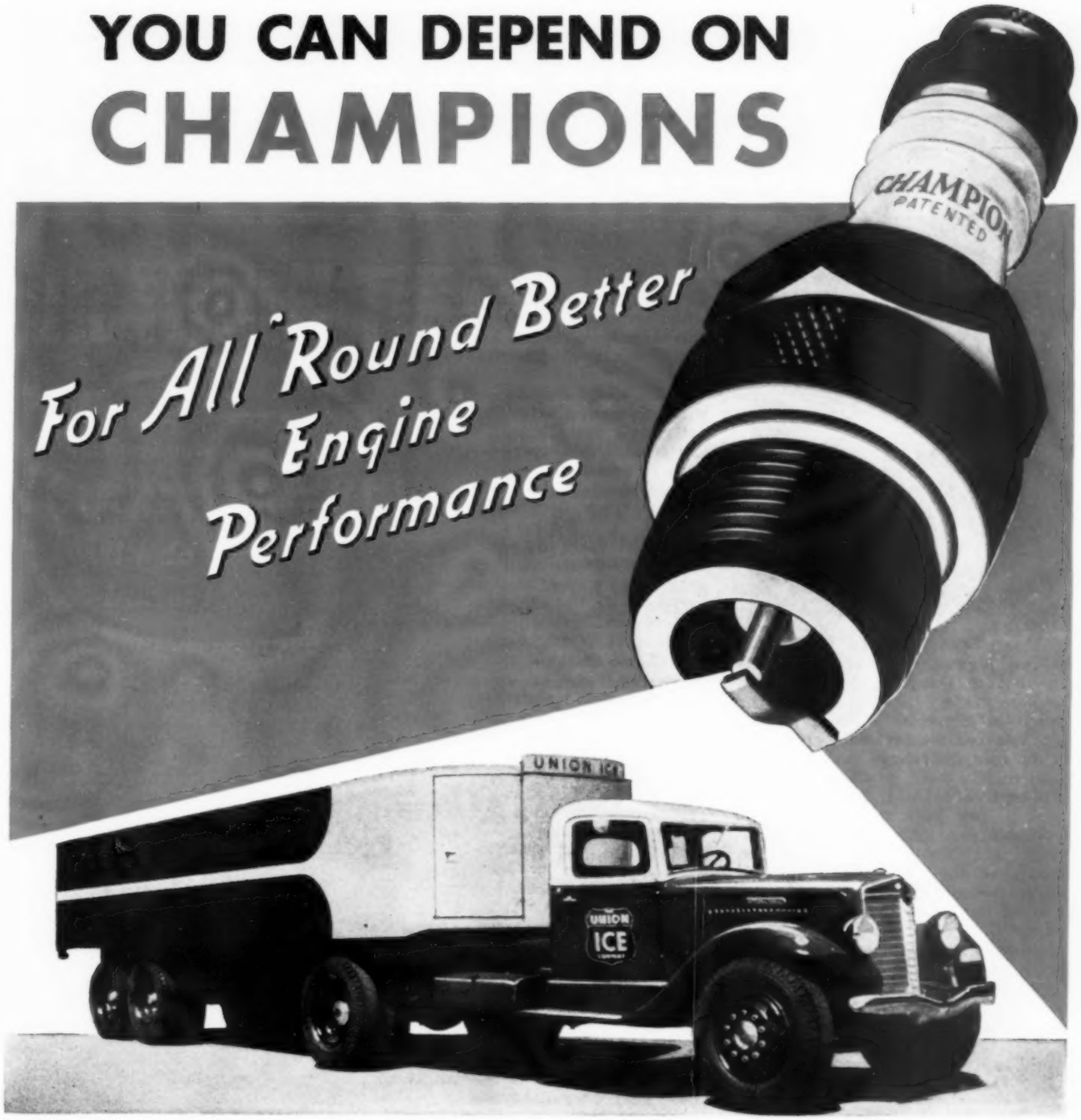
CALCULATING GADGET (FREE)

● Those of you who are engaged in moving earth, sand, stone, cinders, garbage and other stuff which is measured by the cubic-yard, will find ready use for this *"Yardage Totalizer,"* offered free by one of the manufacturers. . . . One side of it contains a truck tally-sheet, on which a daily record of the trips made by each truck can be kept. . . . At the end of the day you simply wipe the slate clean with a damp cloth (or some spit on your finger) and you are ready for the next day's totaling. . . . Another feature of it is the circular "calculator" on which you can easily add up the cubic yardage carried by the entire fleet; at the end of the day your answer will be in "cubic yards moved." . . . This little novelty device



measures 5 x 5 inches and is durably constructed. It is offered free to fleet operators who can use it. . . . If you want one, just use the post-card on page 52 and write across the face of it *"Yardage Totalizer."* . . . We will be glad to transfer your request to the source of supply, without one whit of obligation on your part, save that you will use it when you get it.

YOU CAN DEPEND ON CHAMPIONS



The Union Ice Company, San Francisco, operating a fleet of over 1200 units, use Champion Spark Plugs for better engine performance.

TO MAKE MONEY or not to make money —that is the question that confronts every fleet operator. Spark plugs, to an extraordinary degree, may determine the success of your operation.

Spark plug insulators must be strong enough to resist sudden heat shocks. Champion's Sillimanite—exclusive—has a higher dielectric strength and greater mechanical strength than any other known insulating material. Spark plugs must not leak compression. Sillment—a patented and exclusive dry powder seal —keeps all Champions permanently gas-tight. This, in turn, keeps Champions in their assigned heat range and results in uniform performance in every cylinder.

Champion insulators are scientifically calibrated to provide the widest possible heat range in each type, thus insuring maximum freedom from pre-ignition and fouling. Champion's patented special analysis electrodes prevent carbon formation and gap growth, thus insuring a spark of full capacity at all speeds under all operating conditions.

These and a host of other patented and exclusive features—the results of 27 years of engineering and research devoted exclusively to the betterment of one product —definitely make Champion the better spark plug, the one spark plug that makes every engine perform better.

THE SPARK PLUG CHAMPIONS USE

CHECK AND CLEAN SPARK PLUGS WHEN YOU CHANGE OIL

Stripping *the* Thread

(*Continued from page* 10)

FLEET RECOGNITION

● *"Corporations operating fleets of vehicles are doing an effective work of cooperation with the police in their safety programs,"* Police Commissioner Lewis J. Valentine of New York City admitted recently. . . . His

comments were made in a meeting at headquarters with executives of The Borden Company, during which company safety plaques were presented to managers whose branches had achieved the best safety records in the company's New York City operations in 1937. Of the sixteen plaques awarded in the country, four went to New York units. . . . In the accompanying photo the Commissioner of "New York's Finest" is shown at the left, presenting the Borden plaque to T. P. Evans, manager of Borden's Bronx branch. . . . Edgar G. Quesnel, (right) Borden's national safety director, approvingly looks on. . . . Congratulations, Bordens; and thanks very much Mr. Commissioner, for "recognizing" the efforts being expended by fleet operators towards making this a safer world to live (and drive) in!

●

ARE TRUCK MEN LAX?

● A letter reached us recently, signed by a truck factory branch man, in which he makes a "mass indictment" of *all* truck fleet operators, claiming that they are not as "maintenance-conscious" as bus fleet operators; that they do not have preventive-maintenance programs; that they inspect, lubricate and repair "while loading"; and that schedules and service are such that regular inspection and service work cannot be properly done. . . . He goes on to point out that among bus operators the situation is entirely different; that bus operators have better maintenance executives and more capable service crews; that bus operators have extra units for use while regular ones are in the shop; and that the bus industry is *far ahead* of the truck industry in maintenance work. . . . In short, that the truck fleet operator would do well to borrow a few pages from the note-books of the bus men, especially with respect to preventive-maintenance, unit-overhauls, salvaging of parts, training mechanics and employing *real* maintenance executives. . . . We are sorry that we do not agree with this man; a letter like his should not remain unchallenged. We do not believe that his experience, to begin with, is nationwide enough to enable him to have obtained a true conception of truck fleet maintenance in general. . . . We know hundreds of truck fleet operators who have more rigid preventive-maintenance programs than a lot of bus fleets we have encountered. Outside of a few leading, outstandingly large bus fleets (we won't mention any names) the run-of-mill bus fleet is operated pretty much the same as the truck fleet, with respect to maintenance. . . . Perhaps the trouble is that the bus market has been over-emphasized rather heavily? We know it to be a fact that many manufacturers seeking to sell the bus market are highly overestimating the true potentialities. Someone has been playing it up quite strongly. . . . But lets not bring *that* up. . . . We can only agree with this man when he says that there should be a more liberal attitude on the part of truck operators towards preventive-maintenance. (There should be a more liberal attitude on the part of the government towards business, too). . . . The point can be reached, however, where too much maintenance can be worse than no maintenance at all. Continually fussing with a truck, to find the cause of every little peep and rattle causes the cost-curve to go up, almost as much as delayed maintenance. There is a happy medium somewhere, and in our opinion most truck fleet operators are trying to strike it. . . . In closing this little "defense" of the truck operator, may we point out that not all truck operators "repair while loading." . . . Many of them have specific days for each vehicle to be called from service to inspect, lubricate and correct. Others do all work at night, while *nothing else* is being done to or by the vehicles. . . . We get no extreme thrill in taking our contributor to task, but right is right. . . . If conditions were anywhere nearly as bad as he paints them, then we should be ready to pack our bag for parts unknown. . . . After all of the fine, constructive information on the subject of preventive maintenance that we have been feeding you all of these years (so they tell us), it would be a shame and a disgrace if *all* truck operators were lax, and if "nobody did nothing" until a road-breakdown occurred. . . . You will have to prove your case, brother—and we know better than 16,000 truck fleet men who will back us up.

●

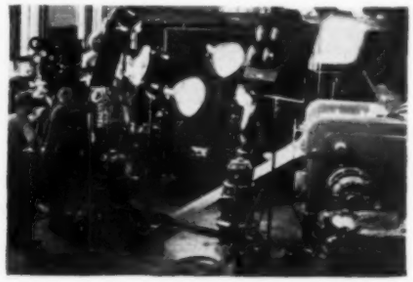
STORE-OF-ALL-TRADES?

● The gasoline station is often called the "store-of-all-trades." . . . There's one in the West which gives lolly-pops to the kids, and sells ice to the kid's pops. . . . Favorite, perhaps, are the caramel pops, which minimize smearing (we didn't say swearing) and 25-pound blocks of ice, which carry easily. . . . Between servicing kids with pops and pops with ice, attendants at this service station clean windshields, sweep toneaus, vacuum upholstery, inflate tires, fill fuel-tanks and crankcases, and perhaps also sell postage-stamps during their spare time. . . . Each week, we are told, this station sells 50 blocks of ice, lots of oil, and 10,000 gallons of gasoline; it also gives away about 250 lolly-pops per week. . . . The tank-trucks which supply this service station are also jacks-of-all-trades, since sometimes they are called upon to pull cars out of ditches, signal a clear road ahead to a following car, tell you the road to Mandalay, and give their advice on the best place to eat in any given locality. . . . The petroleum industry, as you no doubt have suspicioned, is the recipient of our orchids in this little space-filler. . . . But we think they deserve it; don't you?

●

HOW PAINT IS MADE

● No, folks, this is *not* a movie studio; it's just a movie camera-crew "shooting" a non-commercial, scientific movie in color at the Sherwin-Williams paint plant in Newark, N. J.



. . . The film, sponsored by *Mechanix Illustrated*, was recently released to more than 8,000 theatres throughout the country. . . . If you should happen to be interested in seeing how paint and varnish are made, and other subjects of interest industrially, you can obtain details as to where and when the picture will be shown in your locality by writing to Vitaphone Shorts, 321 W. 44th Street, New York, N. Y.

On Its Record

THE GREATEST IMPROVEMENT IN TRUCK TIRES *in 20 Years*

RECORDS of 60% — 80% — even 100% and more — longer tire life coming in from truckers everywhere are proof positive that the new Goodyear YKL is the biggest truck tire advance since Goodyear pioneered the first pneumatics.

What makes this sensational performance possible is the use of RAYOTWIST cord in every ply — a basic new material spun from rayon that far excels ordinary cord in resistance to heat.

Because Rayotwist effectively resists heat—the cause of 82% of all truck tire failures—this new Goodyear YKL will outperform any truck tire you have ever used in these NINE important ways:

1. LONGER TREAD WEAR
2. LONGER BODY LIFE
3. GREATER BRUISE RESISTANCE
4. GREATER SAFETY FACTOR FOR OVERLOADS
5. GREATER SAFETY FACTOR FOR UNDER-INFLATION
6. HANDLES SPEED HEAT
7. GREATER RESISTANCE TO BRAKE DRUM HEAT
8. TAKES MORE RETREADS AND RECAPS
9. GREATER ACCIDENT IMMUNITY

Your Goodyear dealer can show you complete factual evidence of all this. Investigate YKL before you buy another tire — if you want to reduce your tire cost-per-mile to the lowest you have ever known.

TYPICAL RECORDS

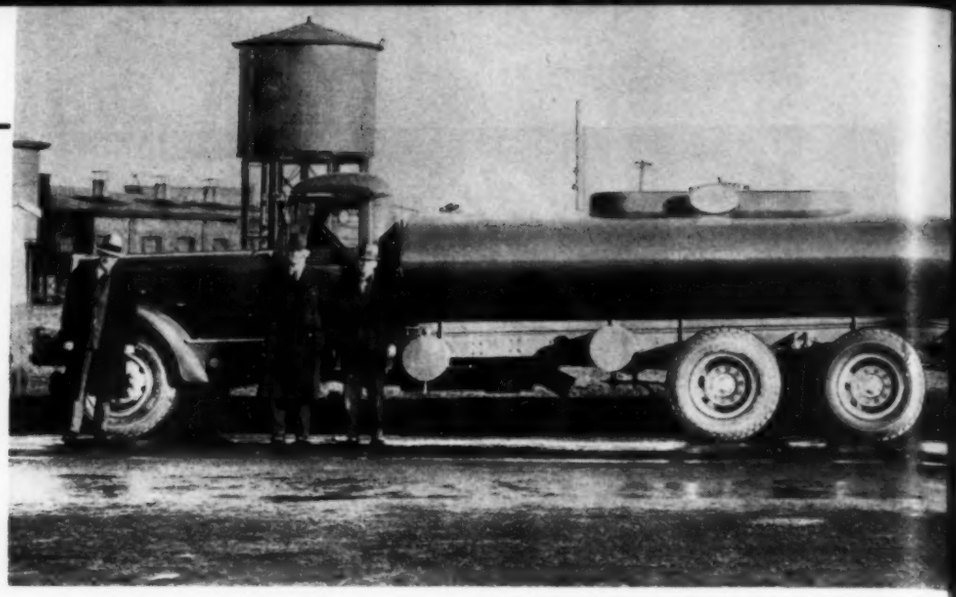
"I averaged 30,000 miles with several brands of conventional tires. Goodyear YKL's averaged 70,000 miles." — *Joe Long Distributing Company, Wichita Falls, Texas.*

"My maximum mileage on other tires was approximately 17,500 miles. To date I have 65,777 miles on YKL's and they are good for 10,000 to 12,000 more." — *Clyde Tinker, Johnson City, Tenn.*

THE GREATEST NAME IN RUBBER

GOODYEAR

YKL
-built with heat-proof
RAYOTWIST
FOR TRUCKS AND TRAILERS



BUILDING and

A FLEET OF TRUCK AND TRAILER

AT THE outset, there is much that could be said with respect to the many and varied phases of truck operation as a whole, such as operations on the public highways, general courtesy to the vehicle traveling public, respect for and obedience of highway and city traffic laws, road conditions, loading and unloading plant facilities for bulk petroleum products, regularity in arrivals at destination as assistance to the station operator in systematizing his many duties, etc.

However, I intend to confine this article more particularly to the subject of the construction and maintenance of tank transport equipment, dealing somewhat at length with specifications for tanks used in the transportation of inflammable cargo and more specifically, petroleum products; also truck data generally.

This subject will also include our conception of safety in operation and respect for life and property on the public highway. This should all be very timely, as the Interstate Commerce Commission is now devoting much time and energy to the subject of motor carrier safety regulations in the transportation of inflammable articles and other hazardous goods.

Our president, Mr. E. H. Kendall, started tank transporting of petroleum products in 1924 in Southern California, while connected with another trucking company as traffic manager. So far as we can ascertain, this was the birth of the bulk petroleum carrier industry, transporting in large single-compartment truck and trailer units, as line-haul transporters from refinery or storage terminal to bulk-plants and substations of the oil companies.

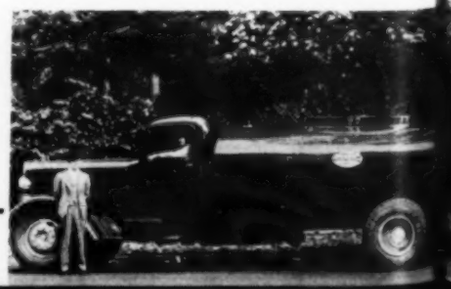
Later, Mr. Kendall came to the Northwest and organized the Arrow Transportation Company. Mention is made of this incident, merely to show the years of experience, of untiring effort, thought and planning that is back of every move that has been made by our company in the direction of building safe equipment.

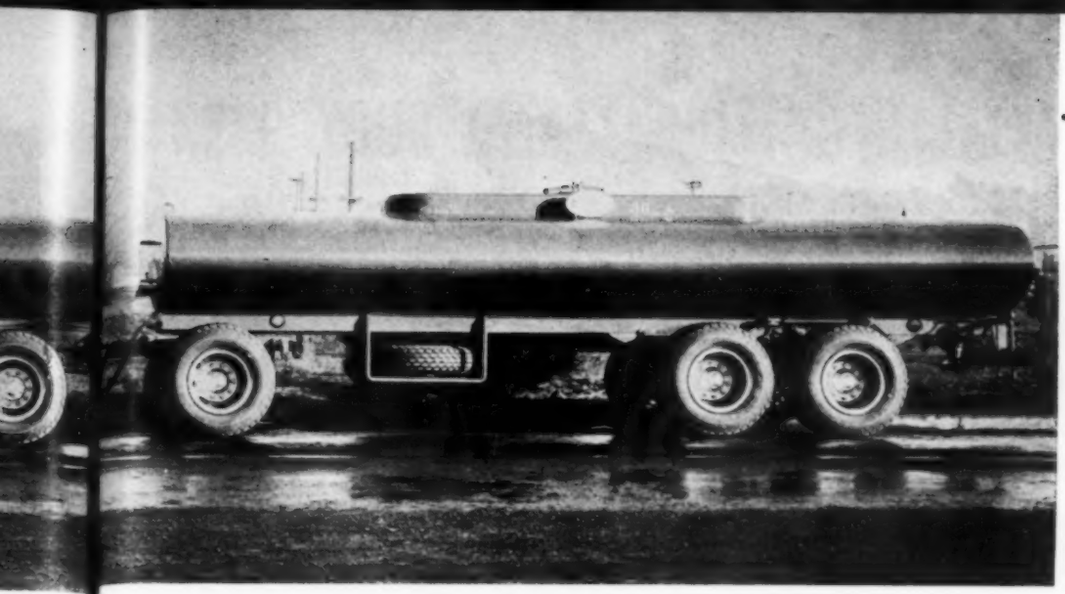
HERE is an interesting description of a fleet operation in the Pacific Northwest that will prove of particular interest to petroleum companies, petroleum haulers and all other fleet operators using heavy-duty tank-truck tractor-trailer equipment. — Editor.

Let us first deal with tank and truck specifications and construction. Arrow Transportation Company designs and builds their own trucks and trailers, and have an enviable reputation in the Northwest for safe operation, with very few road failures or accidents. In fact, our experience is now one road-equipment failure to every 400,000 miles of operation per unit. Last year we operated approximately 2½ million miles on all units and transported about 35 million gallons of petroleum products with no spillage or loss of cargo.

In the Northwest we encounter all kinds of road and weather conditions, with considerable mountain travel and temperatures ranging from 50 degrees below zero in the winter, to 120 degrees above in the summer months. With these conditions, together with the fact that Northwestern operation consists for the most part of comparatively long hauls, it becomes necessary that we take advantage of every economy in operation.

To secure the desired efficiency, as well as safe operation, with due regard to the payload, we some time ago adopted the use of high-tensile steel in the construction of cargo tanks and at the present time we have a good part of our fleet equipped with tanks





MAINTAINING

PETROLEUM TRANSPORT EQUIPMENT

By Jack Gilpatrick,

Superintendent of Equipment,
Arrow Transportation Co.,
Portland, Oregon

of 12-gauge high-tensile steel.

These units have been operating for the past four years with perfect satisfaction and based on this service and the condition of these tanks, there is no indication as to what their maximum life will be.

There were several instances where some of the high-tensile steel tanks were struck in the ends where heads are welded in, without puncturing the tanks or breaking a weld and consequently no loss of cargo.

The expense in up-keep has also been negligible and, in fact, less than with tanks made of the heavier blue annealed steel. Results in service have been more satisfactory, plus the fact that 12-gauge high-tensile steel construction reduces the tare weight of the tank and materially increases the tank strength, as 12-gauge high-tensile steel has a 2-to-1 greater tensile strength in pounds per square inch than the regular 10-gauge, open-hearth, blue annealed steel commonly used in tank construction. We, therefore, can recommend high-tensile steel very highly for this use.

By reason of the use of 12-gauge high-tensile steel giving the tanks a lighter tare weight, we were able to utilize this weight saved in tanks by building our truck and trailer frames more sturdy and by using heavier axles, which allows for greater braking surface and air-brake equipment which is heavier, and we think, more efficient than other types.

This weight saved also allows us to use our own design air-sanders, operated from the driver's compartment, to provide wheel traction on icy highways and mountain grades, by spraying sand in front of the driving wheels.

All this greatly increases operating efficiency and allows the driver better control of the unit on the highway in any and all weather conditions. This in a great measure accounts for our very few road failures or accidents.

Through the use of this high-tensile steel we have been able to drop the center of gravity of our tanks by constructing them in an oval shape instead of the round design type. This is highly important in the transportation of liquid cargo, as the oval-type tanks with the same number of baffles as used in the round tanks have a lower center of gravity, materialy reducing the side-sway effect of cargo surging and, therefore, making for a safer highway operation.

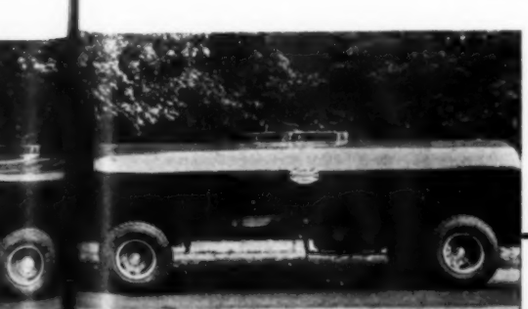
Our oval-type tanks for trailers are of 3,400 gallons capacity. They are twenty feet long, forty-four inches high and ninety-six inches wide and contain five cross-dished baffles and two longitudinal baffles in the form of a channel sixteen inches wide, fabricated from 12-gauge high-tensile steel.

The tanks for our trucks are of 2,000 gallons capacity, and are thirteen feet long, forty-four inches high and ninety-six inches wide, and contain three cross-dished baffles and two longitudinal baffles in the form of a channel sixteen inches wide, also fabricated from 12-gauge high-tensile steel.

Domes on all tanks are from 2½ to 3% capacity of the tank and are equipped with safety valves mounted in the dome cover.

Discharge outlets are 3" in diameter, and are equipped with 3" internal valves, operated manually

(*Please turn to page* 55)



MR. HOFFMAN
REWARDS "SAFEST DRIVER"
AT SOUTH BEND SAFETY MEETING

"Gentlemen of the Road" Earn Awards for Safe Driving

•

QUARTER-CENTURY driver wheels trucks half-million miles without accident. . . . Finds public opinion already changed, as result of careful, courteous truck driving.

"FIRST Gentlemen of the Road" is a new name Paul G. Hoffman, president of The Studebaker Corporation and of the Automotive Safety Foundation, gave to all men driving trucks and busses when he awarded merit cards for safe driving to approximately 400 "gentlemen drivers" at a recent meeting of the Association of Commerce, Commercial Vehicle Division, South Bend, Indiana.

The cards were presented to those men who had not had an accident during the first six months of 1938. The certificates of merit bore the signatures of Don F. Stiver, Indiana Director of Public Safety, and Police Chief Laurence J. Lane.

In making the awards, Mr. Hoffman praised the men for the part they play toward making roads safer for fellow-motorists. By their courtesy and thoughtfulness on the highway, commercial drivers have gradually built up a feeling of good-will and changed public opinion, from antagonism for trucks to a feeling of friendliness. Evidence of the changing public attitude is shown in the state governments. No longer do they wish to legislate trucks off the road.

Twenty-two large South Bend fleets were represented at this rally, including The Studebaker Corporation. Total mileage rolled up for all twenty-two fleets in six months reached the huge sum of 3,200,000 highway miles, which is about equal to 125 trips around the world. Six fleets in the group had not had a single accident, one boasting a record of having run farther than 220,000 miles through the six months from January to July.

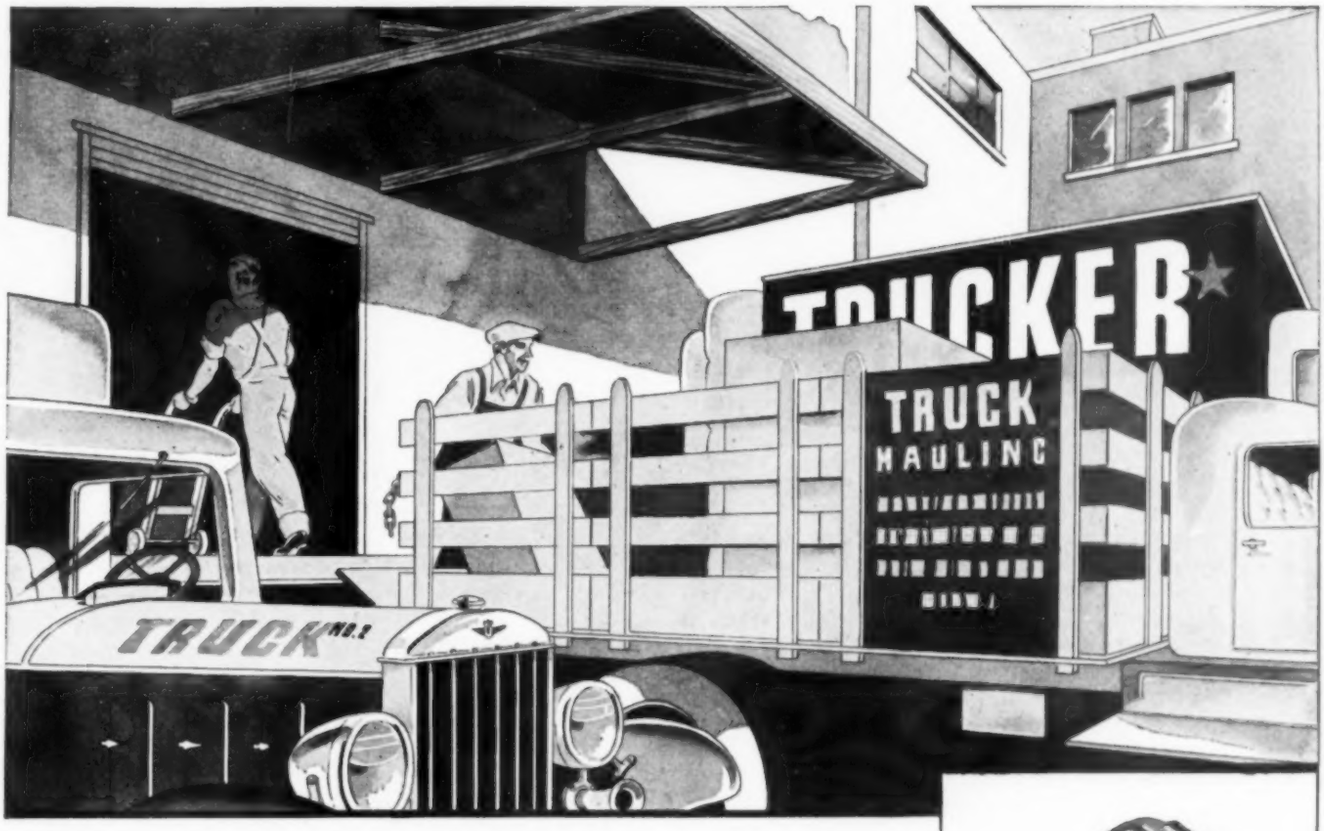
Head and shoulders above the others for safe driving, however, was Edward G. Braniff, who has driven trucks twenty-five years for the Standard Oil Company without an accident. Mr. Hoffman congratulated this gentleman on nearly 500,000 miles of safe commercial driving. For the past several years, Mr. Braniff has driven Studebaker trucks and contributes part of his excellent record to the safety features built into them.

"Safe commercial drivers are doing a great public service," said Mr. Hoffman, who also offered suggestions to the men on ways they could help further this safety work. He told them not to look upon the "smart alec" driver or one who takes unnecessary chances, as a hero. Better to consider him a menace to safety, property and the lives of others.

"Public disapproval of dangerous driving, coupled with praise for those who drive with caution," con-

(*Please turn to page* 58)

KEEP YOUR FLEETS ROLLING BY ALWAYS INSISTING ON *Genuine* TIMKEN Bearings



The TIMKEN Bearing is the world's outstanding tapered roller bearing—has been produced for more than 40 years—has won world-wide recognition wherever civilization exists because of:

(1) The TIMKEN Electric Furnace Alloy Steel from which it is made.

(2) Its inherent design characteristics.

(3) Its precise manufacture.

(4) The Timken Roller Bearing Company's strong financial position.

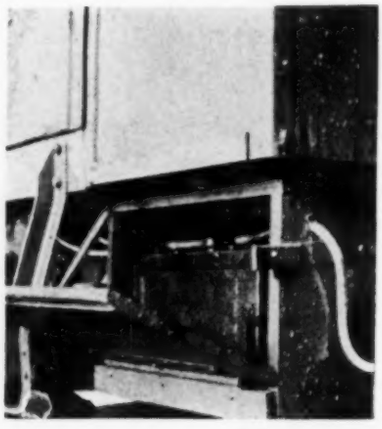
(5) 40 years of national advertising—to the world—to the manufacturer who puts it in his machine—to the man who operates the machine.

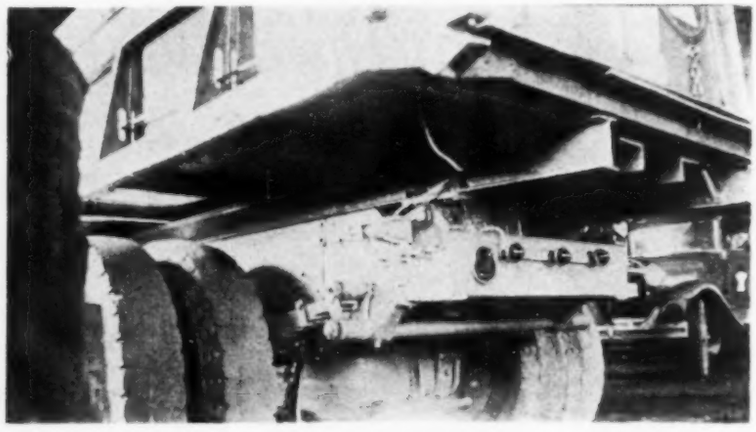
In every case insist on a *genuine* TIMKEN Bearing to replace the TIMKEN Bearing originally installed by the truck or bus manufacturer. Always look for the trade-mark "TIMKEN" stamped on both the cone and cup.

TIMKEN BEARING SERVICE

Manufacturers of TIMKEN Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; TIMKEN Alloy Steels and Carbon and Alloy Seamless Tubing; TIMKEN Rock Bits; and TIMKEN Fuel Injection Equipment.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
Service-sales Division





WIRING HINTS

(A Few Pointers on Starting, Lighting and Ignition Cable)

THE WIRING system of the present-day motor-car, truck or bus receives far too infrequent inspection and check-up in many fleet operations. This is sad, especially in view of the wiring system's relation to safety and engine efficiency.

Careful analysis of motor wiring, in particular, reveals that wiring on modern equipment is subject to much greater destructive action and more liable to quicker deterioration than formerly. These forces of deterioration have gradually become more active as compression ratios have been increased as, the higher the compression, the higher the voltage required. And, the higher the voltage, the greater the destructive effects of corona.

Added to the above are the *gradually* increasing burdens on wiring—the many accessories, signals, lights, etc., that are required by law or deemed necessary by common-sense. These electrical accessories being added, a few at a time perhaps, have greatly increased the load on wiring. Because they are added piece-meal, the additional work that the wiring has to do is sometimes overlooked.

It is important, therefore, to include wiring inspection in every preventive maintenance schedule. It's the same old story of correcting the trouble before it leaves you stalled on a deserted road some dark night. The following hints, are therefore offered, in connection with wiring inspection and rewiring.

When replacing any wire (high-tension or low-tension) care should be exercised to determine just what caused its deterioration—corona, abrasion, moisture, oil, heat, etc. New wire should be chosen for replacement that is especially resistant to that particular destructive force. The following paragraphs will give you an idea of the proper *size* of wire to use in different locations:

Primary Cable: 10-gauge primary cable from battery to ammeter and generator on trucks, buses and taxicabs. . . . 12-gauge primary cable from battery to ammeter and generator on passenger-cars. . . . 14-gauge cable for all long leads; also for all leads to headlights, heavy horns and other large accessories. . . . 16-gauge cable for short leads; also for small lamp bulbs, accessories, etc. . . . 18-gauge primary cable can be used for all very short leads, low-candle-power dome-lights and other small current-consuming needs. . . . Where a 2-wire system is used, double-conductor cable should be utilized, of course.

High-Tension Cable: There are various grades of high-tension cable available. Some manufacturers offer several standards of quality. It is needless to state that the best is none too good for heavy-duty work. If in doubt, follow the recommendations of the manufacturer whose wire you are using. . . . If your wires are subject to unusual heat or oil conditions, you will find special types of wiring especially recommended for these cases. It is not the purpose of this article to play up any particular make or type.

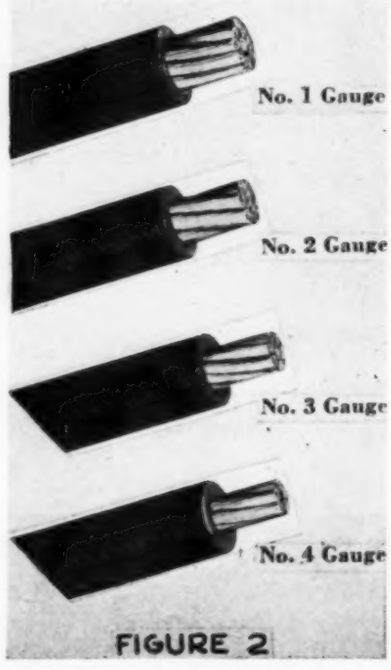


FIGURE 2

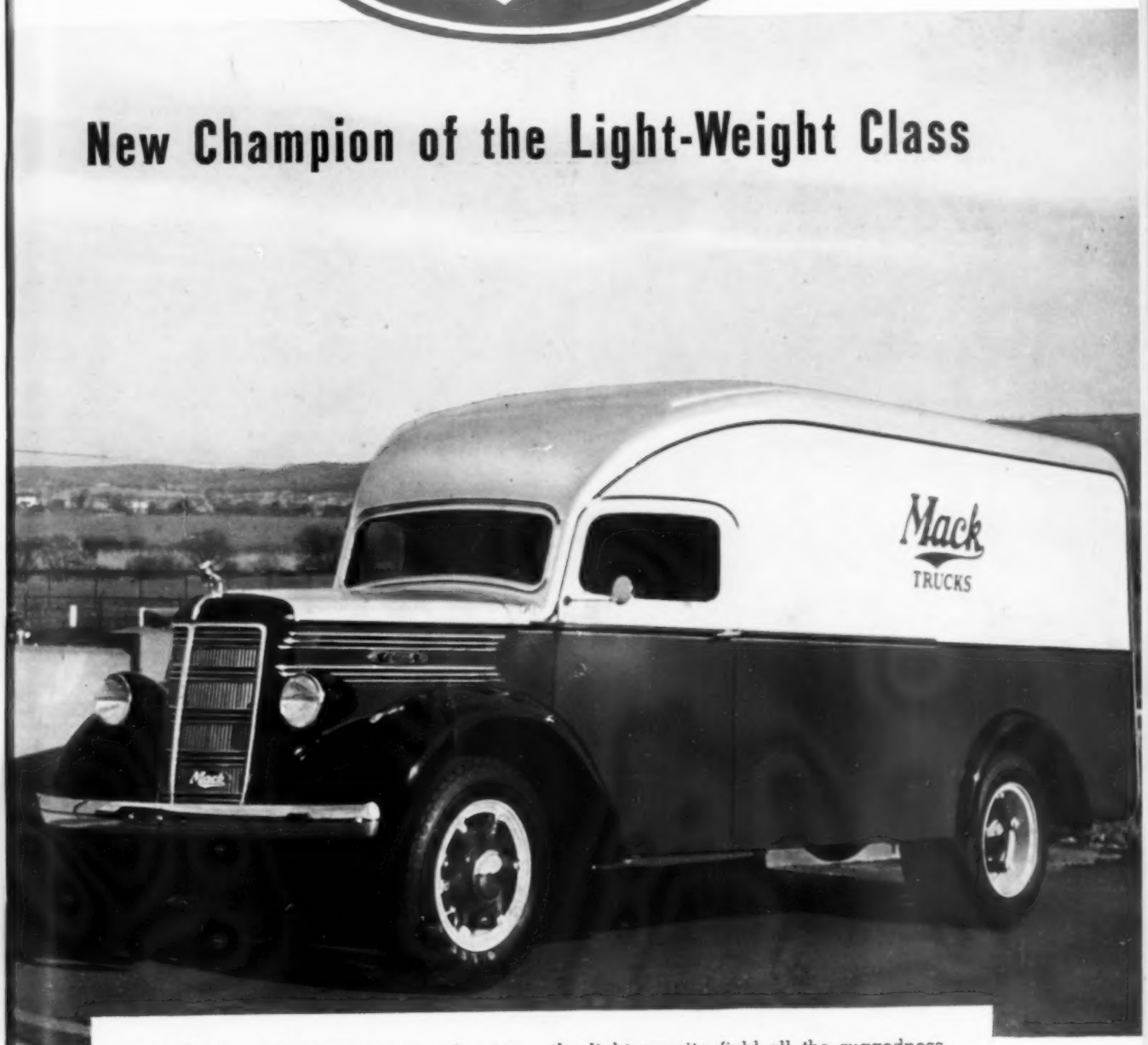
Carrying Capacity: In primary cable installations, it is sometimes desirable to determine the ampere load, especially on lighting circuits. To do this, simply add up the candle-power of all lamps in the circuit and divide the total by 8. This will give the number of amperes in the circuit. Cable that is too small in size will cause a drop in the battery voltage delivered to the equipment. . . . A 10% drop in voltage means a 30% drop in candle-power. Therefore, it will pay to always use cable of ample size.

The following table shows the carrying capacities of cables of dif-

(*Please turn to page* 56)

Mack

New Champion of the Light-Weight Class



Natural color photo Model EG—16,000 lbs. gross.

NOW—from the same factories that produce world-famous Mack heavy-duty trucks, comes a new line of light-capacity Macks—three new models rated at 12,000 to 16,000 lbs. gross vehicle weight.★

Lower in price than any trucks ever to bear the Mack name, these new Macks are backed by the experience of 38 years in building trucks of unrivalled quality. They bring to the light-capacity field all the ruggedness and stamina for which Macks have long been famous . . . plus all the modern styling expected from a truck these days.

In value, reliability and economy, here are the real champions of the light-weight class. See these great new Macks before you buy another light-capacity truck!

MACK TRUCKS, INC., NEW YORK, N. Y.

PERFORMANCE COUNTS!

★ *Includes chassis, body and load.*

• NEWS *of the* TRUCK INDUSTRY •

S.A.E. Vehicle Meet in Chicago

A NATIONAL Truck, Bus and Railcar meeting will be held by the Society of Automotive Engineers in Chicago, Oct. 4 and 5, H. E. Simi, vice-president of the Society representing the Truck, Bus and Railcar Activity, announced recently. . . . Strong emphasis on automotive and railroad technical relationships will be a feature of the sessions, two-thirds of which will deal directly with engineering problems common to the two groups. . . . The program includes three technical sessions and a banquet, as well as a special inspection trip through the plant of the Electro-Motive Corp. at La Grange, Ill.

•

Ford Reports Increased Truck Sales

SALES of Ford V-8 trucks in July showed an increase of 42.5 per cent over sales in June. . . . Commercial car sales were up 17 per cent. . . . In previous years, July sales usually showed a drop under those in June. . . . Ford V-8 truck sales in July totalled 6,235 units, as compared with sales of 4,353 units in June. . . . July commercial car sales were 5,273 units, against 4,486 in June. . . . Part of the increase was attributed to the introduction of the new cab-over-engine models.

•

Chevrolet July Sales Show Increases

CHEVROLET'S new car and truck sales reached 51,047 units in July, exceeding the June total by 5,423 units, or 111.9 per cent of June sales, and setting an unusual sales record, by reversing the normal market trend. . . . Records show that in only two previous years have Chevrolet's July new car and truck sales passed the June mark. . . .The used car stock reduction was also very satisfactory, it is reported.

•

Heil Buffalo Branch in New Quarters

THE HEIL Co., Milwaukee, has moved its Buffalo Branch to larger quarters at 2139 North Fillmore Avenue. . . . Mr. Karl Maas, formerly a member of the sales organization of the Heil New York branch office is in charge of the Heil Buffalo branch.

Dodge Trucks Offers Overall Conversion

DODGE Truck Division announces a new "urban type" delivery panel job, available on the Dodge ¾ to 1-ton chassis. The body is built by Metropolitan Body Company, Bridgeport, Conn. . . . Features include even distribution of load between front and rear axles, broad windows for clear vision, accessibility to insulated engine compartment, curb-level driver's entrance and high sliding doors. . . . For further details address Jos. D. Burke, c/o Dodge Truck Division, Detroit, Mich.

•

Sealed Power Has New Warehouse

SEALED POWER's large stock of motor replacement parts has been moved from their main building to the newly-constructed two-story warehouse, recently announced. . . . The new building will house all of Sealed Power's products, its shipping depart-

ment, direct-mail and printing department. . . . It provides 25% more floor-space for stocking piston-rings, and 50% more floor-space for stocking piston products. Warehousing space has been increased about 40%. . . . The new building represents an addition of 61,250 square feet. . . . Much prompter dispatch of all orders is anticipated.

•

New, Smaller Cummins Diesel Ready Soon

CUMMINS Engine Company, Columbus, Ind., plans to introduce shortly a new smaller Diesel engine, to be built in 4 and 6-cylinder sizes. . . . Bore and stroke will be 4 x 5 inches. . . . A further improvement in the fuel system, which is said to eliminate all smoke and odor, will make this engine suitable for all uses, including city bus work. . . . The new fuel system can be adapted to present engines in service, at small cost, the engineers state.

Colonial Sand Orders 19 More Macks

AN ORDER for 19 additional Cummins Diesel-powered Mack trucks has been placed recently by Generoso Pope, president of Colonial Sand & Stone Company, New York, N. Y. . . . This follows a recent previous order for 50 units, upping the total to 69. . . . The entire order will be turned out at the Mack Company's Allentown plant and deliveries are by this time well under way. . . . See page 58, August issue, for details of the first order, if interested. . . . This brings the cost of the entire two orders to $650,000, which is a lot of truck-dollars in *any* language.

•

Walter Peper Assistant Show Manager

APPOINTMENT of Walter S. Peper as assistant show manager, in charge of the Fifth Annual National Motor Truck Show, is announced. . . . Walter will be released from his duties with the Packard Motor Car Company of New York, up to and for the duration of the show period. . . . He serves regularly in Packard's fleet sales division. . . . Show dates are November 11 to 17. . . . The place is Port of New York Authority Building, New York, N. Y. Offices of the show management have been opened in Room 119, Hotel Pennsylvania, New York, N. Y.

•

Jacobson Manager Chrysler Division

CHRYSLER announces the appointment of Charles L. Jacobson as sales manager of the Chrysler Division, effective immediately. . . . In his new capacity, Mr. Jacobson will have full charge of Chrysler field operations nationally. . . . He has been with Chrysler over 14 years.

•

Cummins Factory Busy; Expansion Planned

CUMMINS Engine Company, Columbus, Ind., is now operating on the largest production schedule in its history, and is carrying on an extensive expansion program. . . . Additions to two of the present buildings are being constructed, and work on a new factory building, strictly modern, in which nothing but the Cummins fuel system will be manufactured, is now under way. . . . P. E. Letsinger, vice-president in charge of sales, states that Cummins plans to double its present production during the next twelve months.

•

Sales Manager Available (Adv.)

SALES and GENERAL MANAGER, age 34, Gentile, single, excellent education; executive type. . . . Now employed (since 1933) but seeks new connection. . . . At present is sales and general manager for automotive product manufacturer. . . . Has excellent sales record. . . . Knowledge of making lay-outs for trade-paper and direct-mail advertising. . . . Capable of taking complete charge of district sales office for manufacturer, preferably in the automotive field. . . . Address B. T., c/o Editor, FLEET OWNER, 90 West St., New York, N. Y.

Mack sells Colonial Sand and Stone Company, Inc., of New York City

50 new Mack Trucks powered by *Cummins Diesels*

for New York City operation where the average daily runs are only 35 miles.

Colonial purchased *62* additional Cummins Diesels to replace their old gasoline engines. They now own a total of... *112*

CUMMINS ENGINE CO., COLUMBUS, INDIANA

CUMMINS
Dependable
DIESEL
PIONEER IN MODERN DIESEL DEVELOPMENT

TRUCKS PLAY IMPORTANT ROLE IN MERCHANDISING

COCA-COLA

CAB-OVER-ENGINE UNITS FOUND VERY SUITABLE

CAB-OVER-ENGINE trucks are playing an important part in the distribution of Coca-Cola, especially in the Chicago territory, about which this article is written. This type of unit has been found to conserve garage space—a very important item in big-city operation—to provide a more favorable distribution of gross load and pay-load; to result in longer tire life and brake wear; and to effect certain economies of operation, with particular reference to the reduction of loading and unloading time.

Apparently, America's thirst for soft drinks knows no season. The trend is toward a more steady popular demand for carbonated beverages the year 'round. This is perhaps best illustrated in the dramatic, swift-moving story of Coca-Cola; a story built upon successful year-'round, large scale processing, merchandising and distribution operations.

Prominent in the Coca-Cola business is the bottled product, processed locally by independently-owned bottling companies throughout the country; each having its own trade territory; each having the use of the copyrighted trade-mark and patented container; each buying Coca-Cola syrup from the central source; and each supported by Coca-Cola display and national advertising and merchandising methods.

An Interview with

C. B. King,

Vice-Pres., Gen. Mgr. & Treasurer, Coca-Cola Bottling Company of Chicago, Inc., Chicago, Illinois

Among the foremost of the Coca-Cola bottling firms is the Coca-Cola Bottling Company of Chicago, Inc., of which C. B. King is vice-president, general manager and treasurer. He is the gentleman responsible for this interesting article.

Within the Chicago trade area, having an approximate 50-mile radius, the Coca-Cola Bottling Company of Chicago, Inc., operates two plants with a combined 24-hour production capacity of 28,800 cases of 24 bottles each—or 691,200 bottles per day. This production becomes insufficient, however, when spread over 30,000 live-wire dealer outlets. There lies the reason, then, for contemplated expansion in processing facilities.

To service its outlets from one to six times a week, the Company employs a large sales force, consisting of so-called truck-salesmen and special salesmen, and a fleet of 114 motor trucks.

To facilitate distribution, stock is centered at strategically-located warehouses in Waukegan, Elgin, Aurora, Joliet and Chicago Heights, Ill., in addition to warehouses at the two plants in the metropolis of Chicago. At the peak seasons of demand, supply trucks replenish the stock of regular trucks on the longer routes.

From the standpoint of distribution, the operation contains many points of interest, one of which is the fleet of forty-two cab-over-engine units, such as is illustrated at the top of this page and on the page following. Thirty of these are 99-inch wheelbase jobs; the remainder are 117-inch wheelbase units. Both of these wheelbase jobs carry a nominal rating as 1½-tonners. The former are equipped with 138-case, the latter with 170-case, specially-designed, steel, deck-type bodies, as illustrated.

Since the adoption of the cab-over-engine type of truck a number of inherent advantages have been observed which are important to the business. In the first place, truck-salesmen like the new cab-over-engine units; riding qualities; the ease of parking in crowded streets; the maneuverability in heavy traffic; and the absence of delay in getting to the dock for loading and unloading, because with shorter overall length, limited dock space accommodates more trucks.

As a result of these advantages, drivers load and unload faster, get going quicker, save steps at nearly every stop, make more stops each day, and consequently more sales, and still they are less fatigued

(Please turn to page 23)

C. O. E. JOBS POPULAR *in* COCA-COLA FLEET (*Continued*)

when the day's work is finished. Obviously these advantages to truck-salesmen are also direct advantages to the company.

For the company, cab-over-engine type trucks conserve garage space—a very important item in big city operation; provide a more favorable distribution of gross load and pay load which results in longer tire life, more even brake wear, and a longer chassis life; and they cut loading and unloading time squarely in half.

With present dock facilities four men working on each truck unload 7,000 cases of empties and load as many filled cases in four hours, which is approximately five minutes to each truck. The loading and unloading operation is facilitated by the use of small skid-type push trucks at the dock. It should be mentioned here that the deck-type body facilitates rapid loading and unloading, and prevents crowns, bottles, and the product itself from being damaged.

CAB-OVER-ENGINE type units are popular members of the fleet of 114 trucks with which Coca-Cola Bottling Company of Chicago, Inc., services 30,000 retail outlets on 88 routes of varying length in the Chicago area. . . . All-steel, open, deck-type bodies have been found most practical.

Routine maintenance is handled by the company's own service department. Daily reports by truck-salesmen inform the service station foreman of any irregularity in the equipment. The mechanics work at night with the exception of the emergency crew, which is subject to call during the day. Since trucks are not in operation at night, the maintenance crew devotes its entire time to work in the service station.

Trucks are washed, thoroughly inspected and greased once each week, which is equivalent to complete servicing every 400 to 500 miles of operation, because even the longest daily run totals no more than 100 miles. Most runs are considerably shorter. Trucks operating in the Chicago loop area, for example, travel less than 20 miles a day.

Refinished at regular intervals, the trucks present an attractive appearance. The color scheme is a good-looking yellow with the standard Coca-Cola trade-mark on cab doors in red, and at the rear of the body in white on a red background.

Through the use of reliable trucks suited to the work, which are maintained on schedule and properly driven, the distribution system has been made especially efficient. Control of equipment is well systematized. Accurate cost records are kept on the operation of each unit, and safe handling of equipment is the first and foremost requisite to distribution.

Carelessness on the part of the truck-salesmen is followed promptly by dismissal. Because safety and courtesy go well together, truck-salesmen are schooled in both at regular weekly meetings. Contending that each truck and each truck-salesman constitutes a living advertisement of the company, Mr. King said:

"We spend a lot of time in personnel work because it is through our personnel that we build good-will for our product. This work is the foundation of our business. One of the first lessons in the course of training for our men is safety and courtesy on streets and highways. We reward these qualities and punish carelessness with undisguised expulsion from the organization."

The company has a total of eighty-eight truck-salesmen. Each is responsible for the business on a definite route. The length of routes varies greatly in keeping with the number of dealer outlets. During the first six months of 1937 truck-salesmen stepped up the business more than 80 per cent over the first six months of 1936. Part of this increase, Mr. King explained, is due to more effective selling, part to an increased number of outlets, part to the introduction of new types of outlets, thereby broadening the opportunity for sales, and part to a larger demand.

Selling tools employed by the truck-salesmen are good-will; adequate dealer stock; proper refrigeration of the product in Coca-Cola coolers; good display and making the product accessible for patron self-service; sufficient, well-placed inside and outside advertising signs and posters; and sufficient outlets to provide adequate representation on each route.

These tools comprise the factors of what Mr. King calls a balanced job of merchandising. Semi-annual analysis of each route and special sales assistance where necessary assure an acceptable all-around job of merchandising on each route all the time.

Even the casual observer is quickly aware of the large number of bottled Coca-Cola outlets in the Chicago area. What the observer sees is signs and posters and the product itself at the dealers' stores. He sees, too, the vast amount of magazine, newspaper, and billboard advertising which covers the area.

What he does *not* see is the vast amount of work which has built up this large "merchandising organization," the fast turnover of the product, and the profits thereby accruing to Coca-Cola dealers. Neither does the observer see the large consumption of the product in the homes which has recently been stepped up by the introduction of the six-bottle carton in retail grocery stores and the rapidly increasing consumption in industrial outlets (factories and offices) through electrically operated, coin-controlled coolers.

The carton and the industrial coin-controlled coolers provide new opportunities for sales because they in-

(*Please turn to page* 57)

The First Public Announcement o

Sterling Steelductor

U. S. PATENT No. 2,058,619

A Revolutionary Advance in the Engineering and Manufacture of High Tension Cable . . .

● Sterling is now prepared to deliver to the automotive trade an ignition cable embodying new construction and new principles which constitute the greatest fundamental advance ever made in ignition cable.

As with every revolutionary improvement, the advantages of this new type of cable will be strongly questioned and openly doubted. Absolutely contradicting the generally accepted theory that copper is the best electrical conductor for every purpose, Sterling Steelductor employs a 7-strand conductor of Stainless Steel, instead of the conventional 19-strand copper.

It effects remarkable improvements in performance, and in overall operating and maintenance economy. The efficiency of this new type of ignition cable construction has been definitely proved. Cable employing this stainless steel conductor has been under manufacture for more than four years, and for more than two years has been specified and in use on a large percentage of naval aircraft.

(A)

TAKES LESS ENERGY FOR SPARK

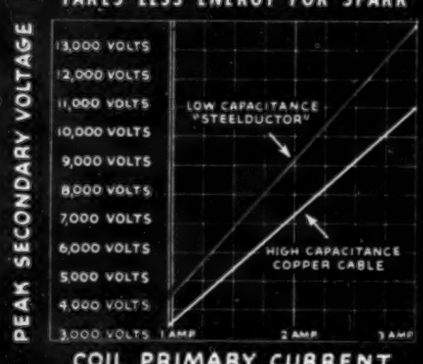


Diagram above shows Sterling Steelductor will give the same peak voltage as conventional copper cable on considerably less primary coil current. Or, with the same primary coil current, it will produce peak secondary voltages approximately 25% higher than conventional copper cable.

The chart above is based on an average spark plug wire shielded circuit, approximately four feet long from coil, through distributor, to spark plug.

(B)

NO INTERNAL CORONA

The diagram above indicates a mechanical advantage of Sterling Steelductor, which in service results in longer useful life. The conventional copper conductor tends to permanently stretch and attenuate when pulled through tight conduits, while the greater tensile strength and high elastic limit of the Stainless Steel prevents this. The elongation of the copper conductor creates air-pockets between the conductor and the rubber compound, where corona starts its destructive attack on insulation from the inside. This doesn't happen with Sterling Steelductor.

(C)

MAKE THIS HEAT TEST YOURSELF

The harmful effect of heat on insulating compounds is well-known. But it generally is thought of as coming from the *outside* of the ignition cable. Yet the metal conductor of the ignition cable is connected to the center electrode of the spark plug, in direct contact with the burning of engine fuel. The conventional copper conductor in ignition cable conducts heat 60 times as fast as Sterling Steelductor. *Test it yourself!* Cut the insulation an inch from the end of a piece of Sterling Steelductor. Hold conductor between thumb and forefinger and heat tip with match until red-hot. Then do the same thing with conventional copper conductor ignition cable.

nt of a New Type of Ignition Cable

Sterling Steelductor makes possible these advantages:

❶ ***Spark discharge with lower battery voltage***—An advantage which is unmatched for winter starting, when low temperatures cut down voltage delivered by battery, and coil primary current is reduced. (See illustration A.)

❷ ***Increases top speeds***—Less misfiring at high engine speeds brings greater fuel economy—increased engine efficiency and power for hard pulls at high engine speeds in low gear.

❸ ***Lower idling speeds***—Greater duration of spark discharge makes the engine tick them off at low speeds without resorting to a wider spark gap—the method usually employed to give smooth idling.

❹ ***Increases life of spark plugs***—Damps out unnecessary oscillations and lowers peak currents, thereby reducing spark plug electrode wear from capacitance component of spark discharge.

❺ ***Decreases burning of breaker points***—The same damping effect and reduced primary currents minimize arcing at breaker points, and consequent burning and pitting of points.

❻ ***Less misfiring from fouled plugs***—More electrical energy may be lost through fouled plugs without causing misfiring—bringing consequent increase in motor efficiency and economy.

❼ ***Internal corona is avoided***—Corona, one of the principal destroyers of insulation, can happen *inside* as well as *outside* the insulation. STERLING STEELDUCTOR avoids this. (See illustration B.)

❽ ***Minimizes effect of heat on insulation***—With conventional ignition cable, heat bores from within to attack insulation and shorten its life. STERLING STEELDUCTOR checks this source of damage. (See illustration C.)

❾ ***Less radio interference***—As a result of all these advantages, plus the fact that it has only 7 strands of Stainless Steel compared to the 19 strands of copper in conventional cable, STERLING STEELDUCTOR reduces the intensity of electrical oscillations in the ignition system which cause radio interference.

These are merely high points **in attempting to give a picture of what this new type of ignition cable—which Sterling is pioneering in the automotive field—will do for motor performance.**

The increased efficiency in motor operation and the longer life of *all* elements of the ignition system, leave no question as to the advisability of replacing ignition cable—on all vehicles in commercial service—with Sterling Steelductor. It will effect appreciable savings in operating and maintenance costs—and give greater protection against costly and troublesome road failures.

Sterling Steelductor—the newest addition to the line of Sterling Silver-Sheathed Ignition Cables—is mechanically, electrically and thermally superior to any other type of ignition cable.

Mail this Coupon

They're Turning to

Sterling

Automotive Cables

"AN AUTO-LITE PRODUCT"

STERLING CABLE CORPORATION
Port Huron, Michigan

Please send sample of revolutionary new Sterling Steelductor Ignition Cable, so that I can make heat test for myself.

Name.....

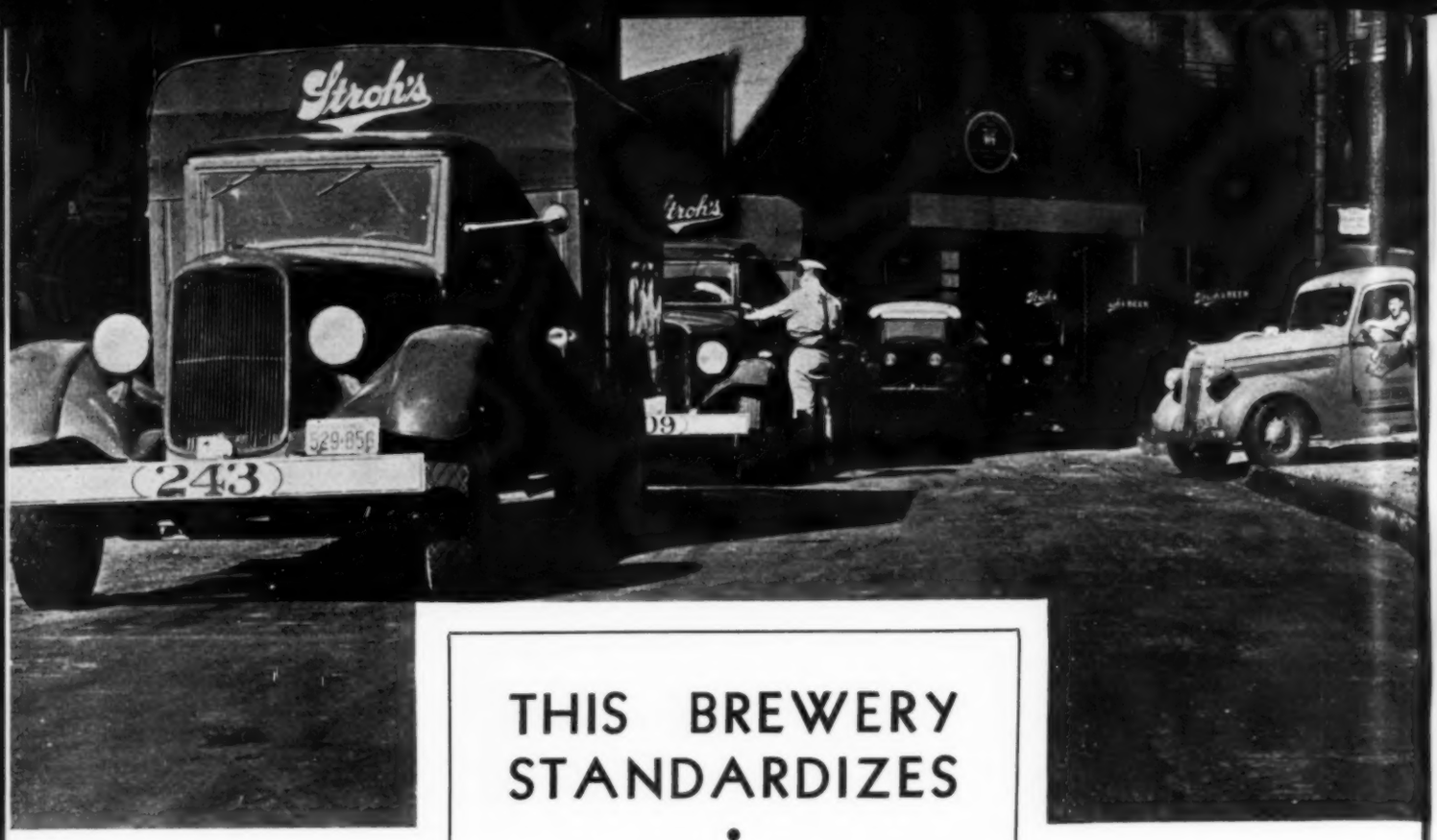
Firm Name.....

Address.....

City.....

My Jobber is:.....

FO



PART of the big Stroh fleet lined up at the Stroh Brewery loading up for early delivery.

THIS BREWERY STANDARDIZES

•

ONE MAKE of vehicle in the fleet provides operating economies, simplifies the work of mechanics and reduces the number of parts to be carried in stock.

NOTE the different types of vehicles and the fact that all are of the same make—Dodge.

THE STROH Brewery Company of Detroit, Michigan, is a firm believer in standardization of automotive equipment. They have found it to pay big dividends in operation and maintenance economies.

Not only that, but the Stroh Brewery fleet of trucks holds a unique record in the annals of American commercial truck transportation. For, in one year's time, the Stroh fleet of 90 trucks covers 500,000 miles, and every one of these 500,000 miles is within the limits of crowded, traffic-choked metropolitan Detroit.

In other words the Stroh fleet is a champion stop-start fleet. Stroh trucks make over 3,500 delivery stops a day or more than 1,000,000 in a single year. They travel through traffic that is said to be as heavy as any in the entire world.

The Stroh fleet, located as it is in the heart of the automotive capital, has literally grown up with modern transportation. The brewery company bought its first trucks way back in 1908, when trucks were pretty much of an experiment with any company. By 1917 the company was operating 25 trucks.

With prohibition (in 1918) the Stroh company entered the soft drink and ice cream fields and operated light trucks for this business.

Then came repeal (in 1933) and with it a rush of new business. The company had to have more trucks and bigger trucks, built for the specific purpose of hauling 5-ton loads of beer in metropolitan service.

In 1934, the company put twenty-five big 3-ton heavy-duty Dodge trucks and five 2-ton units on the job. All of the heavy-duty units were equipped with special 13-foot aluminum bodies, built to the company's own specifications. The lighter 2-ton units had similar bodies, proportionately smaller, of Stroh's design.

These initial trucks proved so dependable and economical that the following year the company added twelve more 3-ton units and six more 2-ton units. The latter units were equipped with special bodies for the ice cream business.

During the past three years the truck fleet has grown with the Stroh business. The company now has 73 Dodge units, including four ½-ton Commercial Pickup models for special deliveries in the crowded downtown areas.

The Stroh Brewery Company maintains its own garage to keep its trucks in perfect operating condition. All of the trucks are inspected at 1,000-mile intervals. Wylie Van Gieson, superintendent of the garage for the past 15 years, keeps a daily performance record on every unit. He made this comment:

"Considering the type of service—the heavy loads hauled and the number of stops and starts in heavy traffic—we're getting unusually good gasoline mileage with our trucks. Our records also show exceptional oil economy.

"Furthermore, our repair bills have been reduced to a minimum. With our present inspection system, we have very few major repairs. Our standardized fleet simplifies the work of our mechanics and reduces the number of miscellaneous parts which we have to keep in stock."

The accompanying picture shows part of the big Stroh Brewery fleet lined up at the Stroh Brewery, loading up for early morning delivery. Note the different types and sizes of the units, and the standardization as to make.

MEASURE YOUR SAFETY IN TERMS OF

Whether you employ performance, first cost or maintenance as your yardstick in the selection of power brakes, you'll find an advantageous combination of all three factors in genuine Westinghouse Air Control ● Here is a time-tested control scientifically designed for the lightest to the heaviest service and one which really begins its effectiveness where ordinary control leaves off ● Universally recognized as the basis of all comparison in rating contemporary equipment, you may be definitely certain of getting the finest control that money can buy when you measure your safety in terms of genuine Westinghouse Air Control.

●

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
PITTSBURGH • PENNSYLVANIA

Genuine WESTINGHOUSE AIR CONTROL

What Fuels *for* Today's Cars, Trucks, Buses?

THE COMBUSTION differences of various fuels can best be understood by referring to the sketch below, representing combustion taking place in the *same* engine, but using three *different* fuels. For this simple "explanation" of the cause of fuel-knock, or "detonation", we are indebted to the engineering department of the Waukesha Motor Company, who have worked with the Cooperative Fuel Research committee for the last ten years.

Referring to the drawing, it will be noted that in all cases the fuel is ignited by the spark plug, the flame travelling across the chamber towards the piston. It is easy to see how—as the flame front progresses and the temperature and pressure of the unburned fuel rise—the fuel mixture soon reaches a point where it would ignite from the heat of compression alone if it were in a Diesel engine. And that is exactly what it tries to do in a gasoline engine. It behaves similarly in an overhead valve engine.

Fig. I represents combustion with an Ethyl gasoline of 78 or 80 octane number. Very little fuel is unburned to cause a knock when self-ignition occurs—if at all—at full throttle opening.

Fig. II represents combustion with a low grade gasoline of perhaps 55 or 60 octane. Quite a high proportion of the total charge is present to cause a knock as it ignites spontaneously at a lower pressure than the fuel in Fig I.

Fig. III shows combustion with kerosene or a similar fuel of perhaps 25 or 30 octane. It is very unstable, and normal combustion doesn't travel very far from the spark plug when—WHAM!—the unburned portion detonates with a real knock because there remains such a large proportion of the total charge still unburned in the chamber when self ignition takes place.

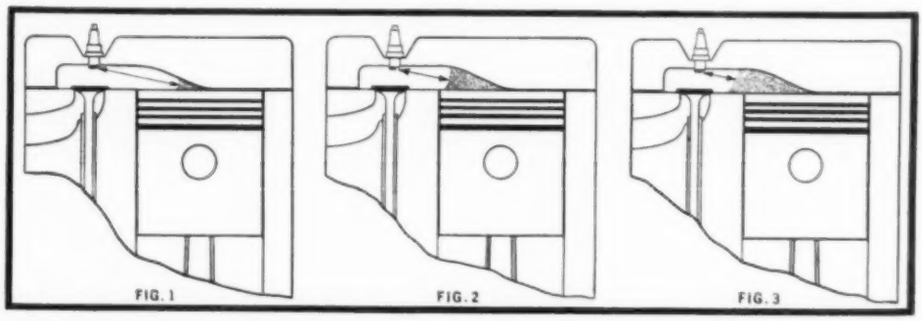
You are probably wondering just how the term "octane-rating" came about. Some fleet men even today do not know exactly what it means. So here is the "answer", offered, once more, for whatever it may be worth:

In 1928 a small group of men met at Waukesha, Wis., to try to establish some means of measuring the knock intensity of various fuels, particularly gasoline; and a variable compression, single cylinder testing engine was suggested as the instrument for making such measurements.

To have some scale with which to compare various fuels, two fuels were selected—Heptane and Octane, the ratio of Octane in a mixture of Heptane and Octane, expressed in per cent, to produce the same intensity of knock as produced by the fuel under investigation, became its Octane number. Octane is very smooth burning—even at high compression ratios, while Heptane is the reverse—knocking badly at very low ratios.

Low-priced cars have today practically displaced the larger "luxury" models as the principal potential users of high-octane gasoline, studies by engineers of the Ethyl Gasoline Corporation, operating a nationwide net-work of motor clinics,

(*Please turn to page* 29)



THESE sketches show the combustion differences with various fuels. . . . Figure I represents combustion with a fuel of 78 to 80 octane rating. . . . Figure 2 with a low-grade gasoline of 55 to 60 octane rating. . . . Figure 3 with kerosene or a similar fuel with 25 to 30 octane rating. . . . The dark portions represent unburned fuel ignited by self-ignition, causing the knock. . . . Data and chart courtesy of Waukesha Motor Company.

AN INFORMATIVE ARTICLE ON MODERN MOTOR FUELS

disclosed, during recent months.

With the average compression ratios of 1938 models of Ford, Chevrolet and Plymouth now higher than the average of the twenty makes of automobiles produced in the United States, sixty-four per cent of the growing American market for anti-knock motor fuel resides in "the big three" in the low-cost field, the clinic engineers find.

The average compression ratio of Ford, Chevrolet and Plymouth is 6.36 to 1, while the average for all cars is 6.32 to 1. In 1937 the national average was 6.23 to 1, having risen from 5.54 to 1 in 1933.

This development, it is explained, is the outcome of a twin advance in petroleum chemistry and automotive engineering. Progress in engine efficiency awaited the production of fuel of adequate power. Chemists responded with the discovery of tetraethyl lead as an anti-knock agent.

Engineers, with a new and powerful fuel at their disposal, were able to accomplish vast improvement in automotive manufacture and design. The advantages possessed by the costlier cars were soon made available to the cheaper models, until now practically the entire motoring world can command speed, power, and comfort unknown a decade ago, except to those with an ample purse.

Out of this transition, engineers declare, have arisen difficulties which today are vexing the staffs of oil and automotive companies, service men, dealers, fleet operators, and other groups having to do with the marketing and maintenance of the nation's motor cars and trucks.

To aid in solving these problems, centering around the elimination of evils resulting from the use of fuel unsuited to high compression engines is the objective of the Ethyl motor clinics in which automotive and petroleum groups in 100 cities will participate during 1938. Clinics have recently been held in Philadelphia, Cleveland, Los Angeles, Indianapolis, Kingston, N. Y., Pittsburgh, and Wichita, Kan.

The ravages wrought by misfit fuel in high compression cars, as shown in tests by the U. S. Bureau of Standards, are portrayed in the educational program of the clinics.

Seeking to ascertain the results of engine knocking, the Federal scientists used a high-compression Liberty motor, fueled with a poor grade gasoline of low octane-rating. The motor was run at high speed. Knocking began soon after the motor reached normal temperature and continued for six hours, after which it was stopped and disassembled. It was found that the engine had literally knocked itself to pieces. The pistons were badly cracked, the connecting rods were bent, and the cylinder walls were scorched. Thousands of members of the oil and automotive industries are studying at the clinics the results of the Government experiment.

Although these results are improbable in the ordinary automobile because the Liberty motor test was run under extremely adverse conditions, the experiment, according to engineers, showed definitely that fuel knocking will eventually exert undue wear on engine parts.

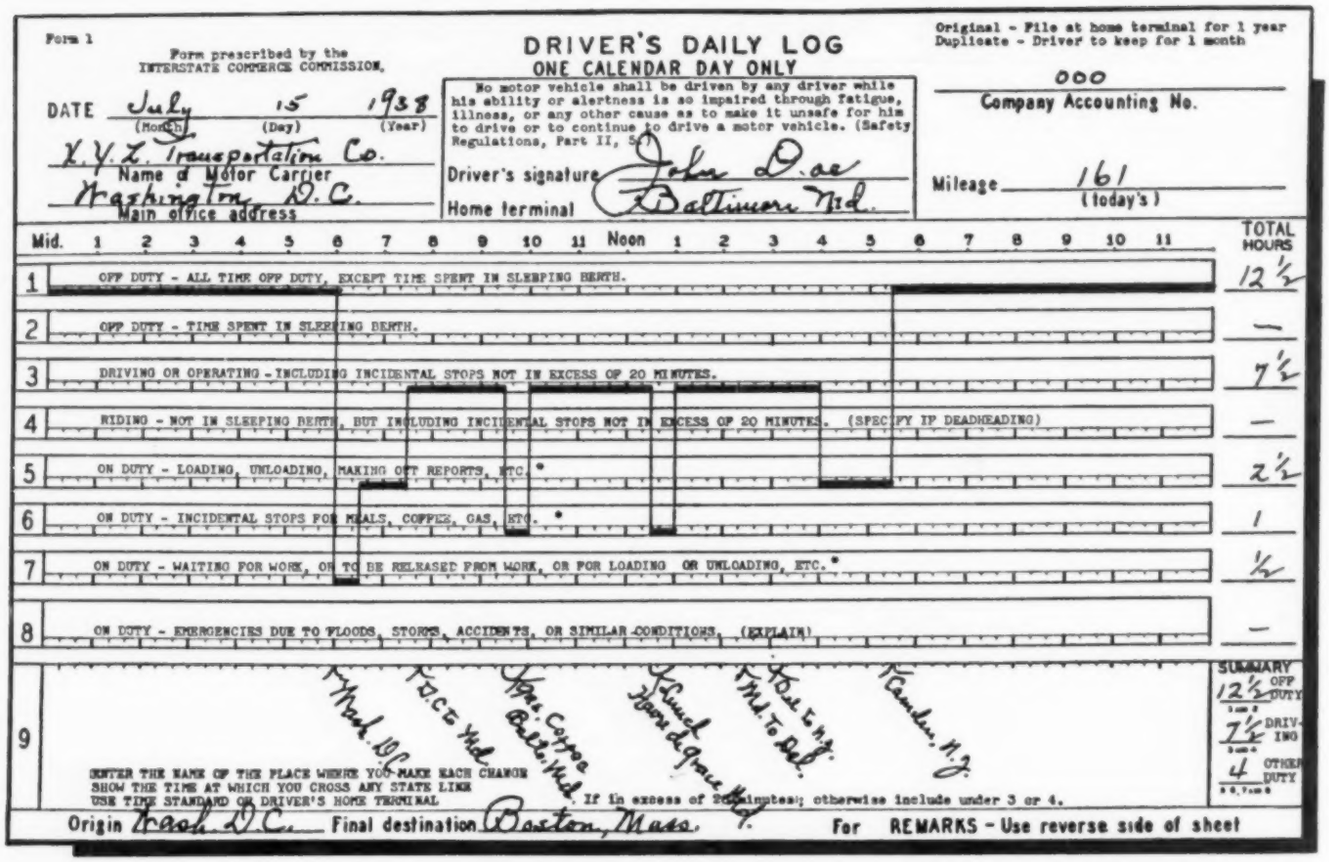
To interpret developments in automotive science, the clinic engineers, employing elaborate and specially-designed apparatus, demonstrate how automobile designers, by decreasing the space inside the engine combustion chamber, have been able to boost the compression ratio of the cheaper and smaller engine without increasing its size. Under the old practice, it is brought out, engine efficiency could be achieved only by increasing the size and weight of the motor.

The smaller space given to fuel mixtures in the high compression engines creates a greater pressure at a higher temperature, thereby delivering more of the heat value to the actual work of the rear wheels.

To illustrate the working of this principle, clinic engineers describe what actually happens when the piston moves up and down in the cylinder of a high compression engine having a ratio of 6 to 1. At the bottom of the stroke, the induced charge of the fuel mixture is represented by a quantity of six pints; however, when the piston is at

(*Please turn to page* 57)

TRUCKS require modern fuels, too. . . . Aside from Ford, Chevrolet and Dodge, compression ratios in late-model truck engines are much higher than they were a decade ago—22 per cent higher, to be exact. . . . Along with this change in truck engine design, horsepower per cu. in. increased 76.5 per cent, while piston displacement decreased 11 per cent. . . . The availability of better fuels have, of course, played an important part in the picture.



Form 1

Form prescribed by the INTERSTATE COMMERCE COMMISSION.

DRIVER'S DAILY LOG
ONE CALENDAR DAY ONLY

Original - File at home terminal for 1 year
Duplicate - Driver to keep for 1 month

DATE July (Month) 15 (Day) 1938 (Year)

X.Y.Z. Transportation Co.
Name of Motor Carrier

Washington, D.C.
Main office address

No motor vehicle shall be driven by any driver while his ability or alertness is so impaired through fatigue, illness, or any other cause as to make it unsafe for him to drive or to continue to drive a motor vehicle. (Safety Regulations, Part II, Sec.)

Driver's signature John Doe

Home terminal Baltimore Md.

000
Company Accounting No.

Mileage 161 (today's)

	Mid. 1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11	TOTAL HOURS
1	OFF DUTY - ALL TIME OFF DUTY, EXCEPT TIME SPENT IN SLEEPING BERTH.	12½
2	OFF DUTY - TIME SPENT IN SLEEPING BERTH.	—
3	DRIVING OR OPERATING - INCLUDING INCIDENTAL STOPS NOT IN EXCESS OF 20 MINUTES.	7½
4	RIDING - NOT IN SLEEPING BERTH, BUT INCLUDING INCIDENTAL STOPS NOT IN EXCESS OF 20 MINUTES. (SPECIFY IF DEADHEADING)	—
5	ON DUTY - LOADING, UNLOADING, MAKING OUT REPORTS, ETC. *	2½
6	ON DUTY - INCIDENTAL STOPS FOR MEALS, COFFEE, GAS, ETC. *	1
7	ON DUTY - WAITING FOR WORK, OR TO BE RELEASED FROM WORK, OR FOR LOADING OR UNLOADING, ETC. *	½
8	ON DUTY - EMERGENCIES DUE TO FLOODS, STORMS, ACCIDENTS, OR SIMILAR CONDITIONS. (EXPLAIN)	—
9	Wash. D.C. / Va.-Md. / Md.-Del. Line / Havre de Grace Md. / Md.-Del. / Camden, N.J.	SUMMARY: 12½ OFF DUTY; 7½ DRIVING; 4 OTHER DUTY

ENTER THE NAME OF THE PLACE WHERE YOU MAKE EACH CHANGE
SHOW THE TIME AT WHICH YOU CROSS ANY STATE LINE
USE TIME STANDARD OF DRIVER'S HOME TERMINAL

* If in excess of 20 minutes; otherwise include under 3 or 4.

Origin Wash. D.C. Final destination Boston, Mass.

For REMARKS - Use reverse side of sheet

« I. C. C. Rules 10-Hour Driver Limit »

EFFECTIVE October 1, 1938, certain rules and regulations will apply to common and contract carriers coming under the jurisdiction of the Interstate Commerce Commission, having especially to do with the maximum hours of drivers and also the compulsory keeping of drivers' daily "logs" and carriers' monthly reports.

Briefly, the I.C.C. has set a 60-hour work week in the trucking-for-hire industry, "to promote safety." This will mean that no driver can work beyond a daily limit of 10 hours *driving time*, followed by an 8-hour off-duty or rest period. The I.C.C. also prescribed a weekly limit of 60 hours "on duty," per driver. "Driving time" includes only such time spent on a *moving* vehicle. It does not include time spent loading, unloading, resting, or sleeping in a cab, lunch, periods, etc.

Rather than reproduce here what most common and contract carriers are already familiar with, let us suggest that all interested parties immediately get into touch with their local I.C.C. Bureau for further details. Ask for a copy of the booklet entitled *"Hours of Service Regulations,"* which tells everything.

At the top of this page we have reproduced the "Driver's Log" with the thought in mind that it might interest fleet operators in *other* lines of business, *not* coming under I.C.C. jurisdiction. The accompanying example shows how the Driver's Log is filled out. Refer to the above, as you read:

New Ruling Applies, of Course, Only to Common and Contract Carriers Under I. C. C. Jurisdiction

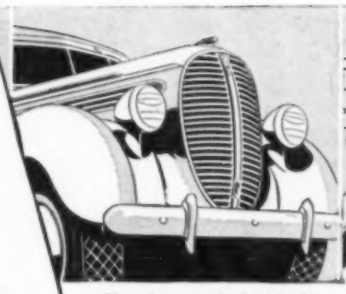
The driver in this instance reports for duty at Washington, D. C., at 6 a. m., waits 30 minutes for work, loads for 1 hour, then drives or operates 2 hours, reaching Baltimore, Md., at 9:30 a. m., where he stops 30 minutes for gas and coffee; he then drives 2½ hours, reaching Havre de Grace, Md., where he stops 30 minutes for lunch; from there he drives 3 hours, reaching Camden, N. J., at 4 p. m. After unloading for 1½ hours, he goes off duty for the rest of the calendar day.

In section 9, crossings of State lines are indicated by checks and abbreviations of the names of the States at 7:45 a. m., 2:30 p. m., and about 3:15 p. m. Stops of 15 minutes, from 8:30 to 8:45 a. m., to deliver lading at Laurel, Md., and from 3 to 3:15 p. m., while crossing on a ferry, are not shown, but are included as driving or operating, as they are periods of not more than 20 minutes.

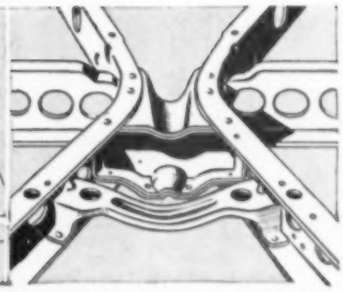
This day's log covers the first leg of a trip from Washington, D. C., to Boston, Mass.; the origin and final destination are shown at the bottom of the log because the trip will take more than 1 day to complete. The totals in the right-hand column show 12½ hours off duty, 2½ hours loading or unloading, 7½ hours driving or operating, 1 hour spent in meal or similar stops, and 30 minutes waiting for work. These amounts are gathered together in the lower right-hand corner to give 12½ hours off duty, 7½ hours driving

(*Please turn to page* 58)

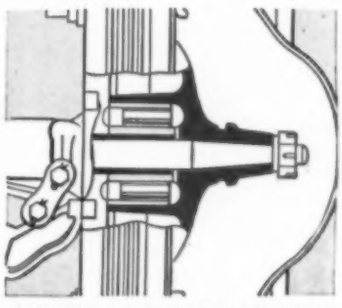
A FORD COMMERCIAL CAR IS GREATER THAN THE SUM OF ITS PARTS



New front end gives units business-attracting appearance.



Rugged strength in Ford frame construction braced with sturdy box-section X-member.



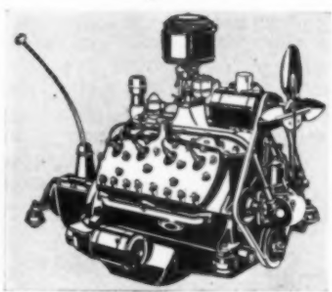
¾-floating rear axle for high power-transmitting efficiency. An earmark of fine truck construction.

—BUT LOOK AT SOME OF ITS PARTS!

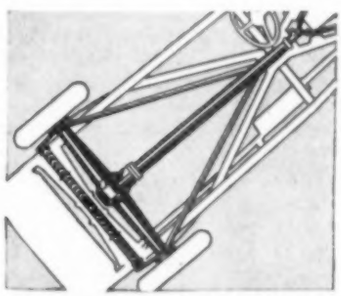
Some truck buyers like to go over a unit part by part and judge it on its "points." A few of the features of the 1938 Ford V-8 Commercial Car are shown here. Some are interesting because they are new improvements. Some are time-proved features which continue to be newsworthy because they represent the type of expensive design and construction that Ford is able to offer at low cost.

But—a Ford Commercial Car is *greater* than the sum of all its parts. Into every unit goes the experience gained in 21 years of truck-building leadership. *Back* of every Ford V-8 is the constant ideal—to build strong, light-weight units that put MORE PAY IN EVERY PAYLOAD. And *with* each commercial car go the time-and-money-saving advantages of the Ford Engine and Parts Exchange Plan.

You get value *far beyond* its price when you get a Ford V-8.

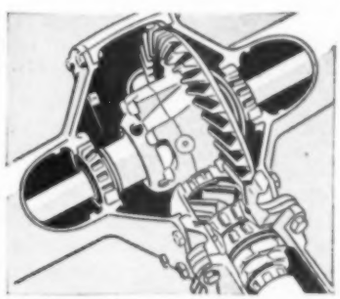


V-type 8-cylinder engines—60 or 85 hp.—make Ford performance a byword.



Full torque-tube drive relieves springs of driving and braking stresses.

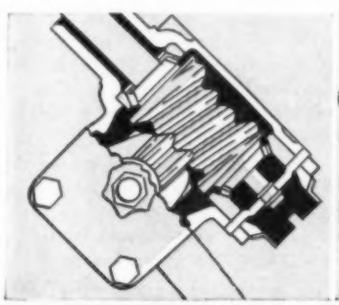
New welded all-steel cab gives extra strength, safety, comfort. 3 inches more head room.



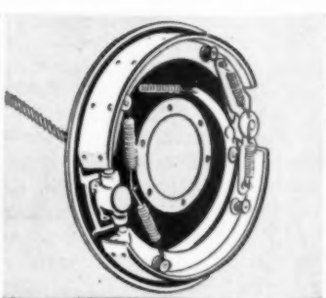
Straddle-mounted driving pinion serves to reduce strain on the pinion shaft.

FORD V·8

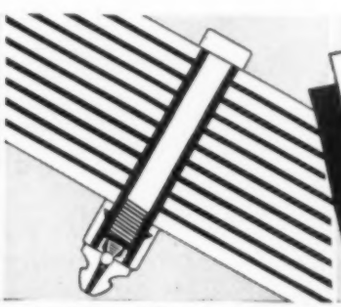
TRUCKS AND COMMERCIAL CARS



Worm and roller type steering—for easier turning and parking . . . easier handling under all conditions.



Easy-Action Safety Brakes give the safety of steel from pedal to wheel.



Increased riding comfort and quiet provided by interleaf spring lubrication.

ARRANGE FOR AN "ON-THE-JOB" TEST

LETTERS TO THE EDITOR

MORE 4-CYLINDER DEMAND

● *To the Editor:* I noticed your recent remarks regarding 4-cylinder trucks and the demand for same.

There are a number of places where we could (and would) use ½ and ¾-ton, four-cylinder units, if same were available and provided that they could be serviced by local dealers in the small towns in which we operate.

Also, we would surely like to see such new units so constructed that it would not take an hour-and-a-half and a shelf full of special tools, to perform a 10-minute repair job.—*D. E. Woods, Safety Director and Supervisor of Transportation, Central Light & Power Company, Corpus Christi, Texas.*

●

BUS MAINTENANCE VS. TRUCK?

● *To the Editor:* Much discussion arises from the fact that there is a great deal of difference in the maintenance methods of bus companies and the methods practiced by trucking companies. The difference in the two set-ups is generally laid to the theory that the nature of the work performed by the trucks prohibits the use of bus maintenance practices.

Statements are often made to the effect that trucks must be lubricated, inspected and serviced while the vehicles are being loaded; that schedule structures are such that regular inspection and service work cannot be handled as in bus operations. The trouble lies deeper than that. It is my opinion that it is just lately that motor truck operators have become maintenance-minded.

I would like to see a more liberal attitude towards maintenance—especially preventive-maintenance—on the part of truck operators. I believe that the trade papers can bring this about, and I don't mind telling you that your magazine, FLEET OWNER, is well liked by all of the maintenance men of my acquaintance, and especially by one who is Superintendent of Maintenance of a large intercity coach line.—*Anonymous, Syracuse, N. Y.*

(EDITOR'S NOTE: *The above letter is but a short synopsis of quite a lengthy communication received from this anonymous contributor. . . . For further details and some of our comment, may we refer you to page 12 of this issue.—H. C. F.*)

●

MORE GOVERNOR COMMENT

● *Dear Mr. Fischer:* Replying to your query on page 45 of the July issue, I have heard of (but have never seen) a simple governing device developed by someone on the Eastern coast, which works off a separate speedometer head.

As told to me, the cable is disconnected at the transmission take-off, and a special fitting is screwed in, which provides for another cable take-off. The second cable is run to a speedometer head, the indicating needle of which makes contact with a stop which can be adjusted at any location, from 10 to 100 m.p.h.

No current flows through this indicating needle, but the needle has a contact point which closes a small gap in the stop. The closing of this gap allows a small amount of current to flow, which, in turn, actuates relays that put a heavy-duty current to work on a hydraulically-dampened solenoid, which actuates an air-valve. I presume the latter works in conjunction with a vacuum booster brake, or possibly with air-brakes.

If your inquiring reader is interested in a governor for the *driver*, I suggest that, in place of hooking all of the above mechanism up to the brakes, that it be connected to an air-horn of particularly nasty loud tone, mounted immediately above the driver's head.—*D. E. Woods, Safety Director and Supervisor of Transportation, Central Light & Power Company, Corpus Christi, Texas.*

●

ANOTHER 4-CYL. ADVOCATE

● *Dear Mr. Fischer:* Your "Editor's Column" in the July issue of FLEET OWNER with reference to 4-cylinder trucks appealed to me very much.

It is my belief that a great many lines of businesses could use a 4-cylinder truck to great advantage, especially where multiple stops and long idling periods are concerned.

It looks to me as though a large percentage of trucks should be of the 4-cylinder type, both in small and large capacities. Topography of cities and towns is also a factor. Flat territories do not need overpowered chasses to do the average trucking job.

I have felt for a long time that the trend should be *toward* the 4-cylinder engine, rather than *away* from it. I feel that a large number of our truck manufacturers, other than the ones mentioned in your editorial, are working on this. And, as you say, maybe we *will* get them sooner than we think.—*Jas. B. Carry, Supt. Automotive transportation, Chestnut Farms—Chevy-Chase Dairy, Washington, D. C.*

●

LIKED OIL AND GAS SURVEYS

● *Dear Mr. Fischer:* We would like to tell you how pleased and interested we are in your monthly publication, FLEET OWNER. . . . We all find it very interesting.

We especially appreciated your breakdowns of the questionnaires on gasolines and motor oils, which we received a short time ago. . . . Thanks, very much.—*C. Dillman, Mohawk Lumber Co., Ltd., New Westminster, B. C., Canada.*

●

MANUFACTURERS ATTENTION

● *To the Editor:* I have noticed that a lot of new and interesting products are announced through the reading and advertising pages of your very attractive and interesting magazine, FLEET OWNER.

I am interested in securing one or two additional lines to handle, on a "manufacturer's representative" basis, and would appreciate hearing from any interested manufacturer of automotive products who desires additional fleet distribution in this territory.—*Erie M. Bottom, 410 National Bank of Commerce Bldg., Tulsa, Okla.*

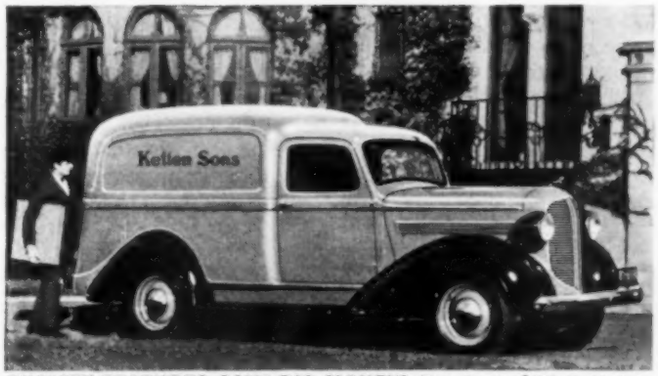
LOW DODGE TRUCK PRICES

Put Dodge Quality Within Reach of Every Truck Buyer *Right Now!*

"RIGHT NOW is the best time in history to buy a new Dodge truck," say thousands of smart buyers. Dodge trucks today are one of the lowest-priced makes yet they include all the famous Dodge extra-quality features. These known, recognized quality features often effect such big economies on gas, oil and tires that many who trade in old trucks assert the "savings take care of a good share of the monthly payments on the new Dodge." On top of that, many also report that "the old truck was worth a lot more in trade today on a new Dodge than I expected." It will surprise you to learn how easy it is to buy a new Dodge. See your Dodge dealer now!

Tune in on the Major Bowes Original Amateur Hour, Columbia Network, Every Thursday, 9 to 10 P. M., Eastern Daylight Saving Time.

This advertisement endorsed by the Engineering Department, DODGE Division of Chrysler Corporation, Manufacturers of Dependable Cars and Trucks.



QUALITY FEATURES SAVE BIG MONEY! This big 116" W. B. Dodge Panel is unquestionably America's most beautiful truck. Has genuine hydraulic brakes, roller bearing universals, exhaust valve seat inserts...dozens of money-saving features. See your Dodge dealer.

MANY EXTRA-QUALITY FEATURES! Dodge 1½-ton Stake, 6-Cyl., "L"-Head Engine—features include 19 special "econ-o-mizers" yet priced with the lowest! (133" wheelbase with 9' body and 159" wheelbase with 12' body.)

LIBERAL BUDGET TERMS

Many are now operating Dodge trucks because of the low down payment and liberal terms made available to them.

DODGE TRUCK PRICES DELIVERED IN DETROIT

Including Federal Taxes. (Local, State Taxes Not Included)

½-TON 116" W. B. CHASSIS $475

½-Ton Pickup—116" W. B. $600
½-Ton Panel—116" W. B. $695*
¾-Ton Express—120" W. B. $694

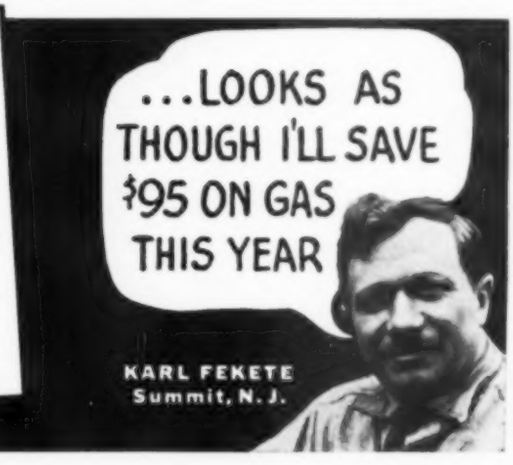
Price includes front bumper, spare tire and tube.
Also includes rear bumper.

1½-TON 133" W. B. CHASSIS $604

1½-Ton Chassis and Cab—133" W. B. ... $702
1½-Ton Stake—133" W. B. $798
1½-Ton Stake—159" W. B. $842

Price includes front bumper.

Other models of ½, ¾, 1, 1½, 2 and 3-ton, at correspondingly low prices. **FOR DELIVERED PRICES IN YOUR LOCALITY SEE YOUR NEAREST DODGE DEALER.**



G.M.C. Offers Factory-Built Retail-Delivery Unit

New "Special Delivery" Has 108-Inches Floor Space on 112-Inch Wheel Base

A SMART new "stop-and-go" retail delivery truck, which employs the GMC type of cab-over-engine design to provide an unobstructed flat floor loading space 108 inches long on a wheelbase of only 112 inches, is announced by J. P. Little, vice-president directing sales of the General Motors Truck and Coach Division, Pontiac, Mich., as the latest addition to the General Motors Truck family.

The compact new unit, factory-built throughout, is designated as the "GMC Special Delivery." Its styling closely resembles that of the latest highway coaches. The interior dimensions of the stream-lined, steel-covered, insulated body are 66 inches high by 68 inches wide, offering a body load capacity almost double that of conventional panel trucks of equal wheelbase.

A wide track front axle supplements the short wheelbase in reducing the turning radius of the truck, with consequent improvement in maneuverability. Special attention has been directed toward reducing driver-fatigue. The operator sits far forward on a high form-fitting seat from where he enjoys an extraordinary angle of vision both horizontally and vertically (with very little difficulty he can see the front bumper).

The remote-control gear shift lever is located on the steering wheel post and the parking lever at the right of the seat is so short that the operator slides over it without difficulty when entering or leaving the right side of the driving compartment. The tool box of the truck, incidentally, forms the base of the driver's seat. Forward step wells on both sides, with the steps only one foot from the ground, add further to the driver's convenience.

Loading and unloading from the rear are facilitated by a full width rear extension step and by the fact that the floor level averages only about 31 inches above the pavement, depending upon the load carried. All-steel front doors, which may be locked in either open or closed position, slide backward into body recesses. The heavy rear door is sealed against dust and weather and is provided with spring-tension locks. A double rear door is optional at extra cost.

The special body is of composite unit construction — plywood and metal. It is insulated throughout with either sound-proof fibre board, or special wadding glued to the metal. Front-end is of steel construction, electrically welded. Roof frame consists of steel corner stampings welded to longitudinal roof rails. Plywood, with steel over, covers the roof.

The standard body of the "Special Delivery" may be fitted, of course, with side compartments, hangers or whatever type of special equipment is best suited to the delivery needs of various retail businesses.

The motor, an L-head type six with a high factor of operating economy, is made accessible by the lifting of a panel section of the insulated steel floor in the driving compartment. Among the features of the motor are a heavy duty starter especially designed to stand up under severe "stop and go" operation, and a generator which provides a high rate of charge for slow speed operation.

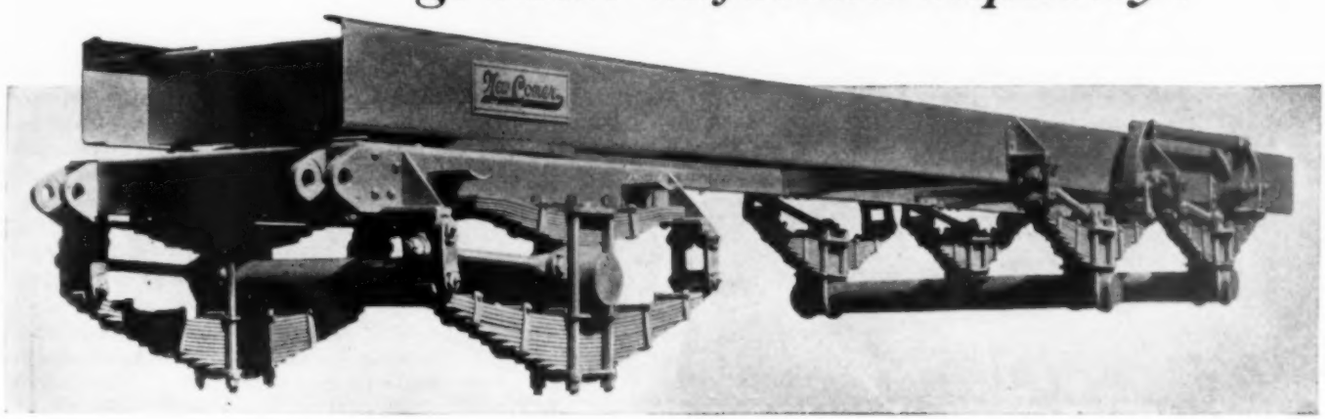
Motor details are as follows: Six cylinders, 230 cubic inches, bore and stroke $3\frac{7}{16}$ x $4\frac{1}{8}$ inches. Full-pressure lubrication system, to all bearings and wrist-pins. A horizontal carburetor is used, with special throttle-stop that limits the throttle opening.

Standard equipment includes instrument-panel box, indirectly illuminated, equipped with speedometer, ammeter, oil-pressure gauge, electric gasoline gauge and water

(*Please turn to page* 58)

Built of MAN-TEN

. . . This Trailer Frame has 60% greater safeload capacity!



WITHOUT increasing the weight of former construction, the Callahan Engineering Co., Los Angeles, by using U·S·S MAN-TEN in this trailer frame, increased the safeload capacity from 10.8 tons to 17.3 tons.

This MAN-TEN frame weighs 578 pounds. A frame of equivalent safeload capacity in mild steel would weigh 300 pounds more.

300 pounds is admittedly not a great deal of weight saving. But over the life of a trailer like this it adds up to a tremendous total of ton-miles and becomes revenue-producing payload instead of unprofitable dead load.

In this instance, good engineering had already reduced dead weight about as far as it was safe to go within the strength limits of ordinary steel. But we can point to *many other* cases where redesign with U·S·S MAN-TEN and COR-TEN has reduced dead weight of trucks and trailers up to 30-40%.

Such saving in weight can be directly translated into additional payload capacity. It quickly pays for the slight extra cost of construction with these stronger, longer-lasting steels. And after that, all additional load hauled is clear profit during the life of the equipment.

We'd be glad to show you how U·S·S MAN-TEN, COR-TEN and the other U·S·S High Tensile Steels will improve your equipment—make it stronger, lighter, more profitable to operate. Write us for full particulars and your copy of the COR-TEN book.

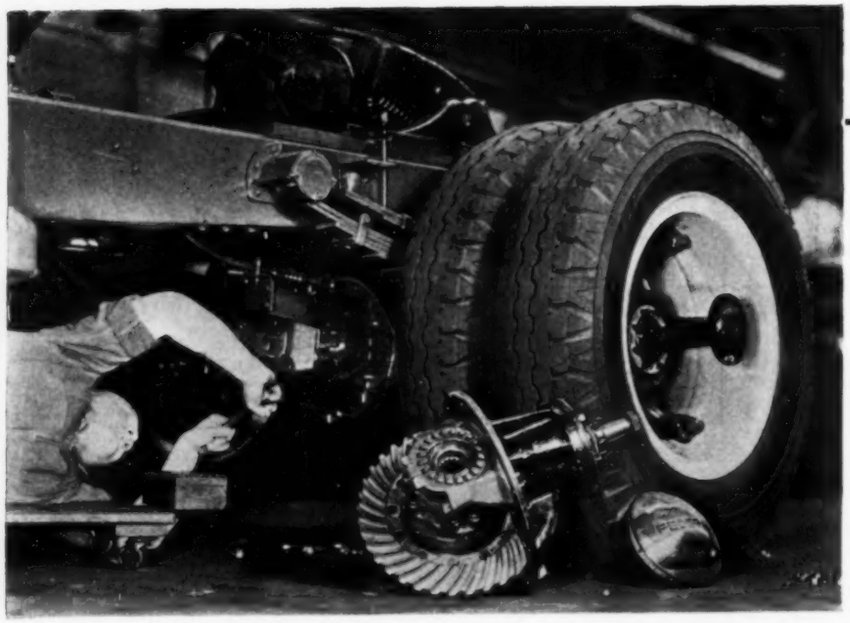
. . . and here Man-Ten increases payload capacity 30%

U·S·S MAN-TEN is 50% stronger than mild steel. Has much greater abrasion resistance, stands more scuffing and hard use. Reduces the weight of this trailer frame 1700 lb., 34%. Increase payload capacity 30%. Pays the Los Angeles Department of Water and Power approximately $25 in increased revenue and lower operating costs every day they use this trailer.

U·S·S HIGH TENSILE STEELS

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco* · NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Products Company, New York, *Export Distributors* · Scully Steel Products Company, Chicago, *Warehouse Distributors*

UNITED STATES STEEL



"Innards" Interchangeable in New Timken "3-for-1" Axles

•

FLEET OPERATORS can inter-change axle "guts" easily, in order to fit present trucks to different jobs, when this axle assembly, offered in three sizes, is used. . . . Regular bevel-gear, 2-speed, or double-reduction drives can be switched at will—just like changing spark plugs.—Editor.

EVIDENCE of truck buyers' growing demand for vehicles that "fit the job" is seen by Walter F. Rockwell, vice-president and general manager of the Timken-Detroit Axle Company, in the constantly increasing popularity of Timken's new "3-for-1" Axle.

This axle offers the fleet operator a choice of any one of three final drives that provide a wide selection of rear axle gear ratios. It is now available in a majority of truck makes on several popular models.

"Our belief that correct gear ratio is one of the most important factors in low-cost hauling prompted us to put this 3-for-1 Axle on the market," Mr. Rockwell said. "And its enthusiastic reception leads us to believe that the importance of correctly gearing the truck to the job is now clearly recognized."

Mr. Rockwell explained that the new 3-for-1 Axle enables the buyer to select a final drive ratio that most nearly balances the truck's ability for speed and pulling power, in relation to his particular hauling needs and road conditions. A "compromise choice" is unnecessary and there is no delay.

Timken engineers have developed this complete rear axle assembly, consisting of housing, brakes, hubs, drums and axle shafts, to accommodate any one of three types of final drive—Bevel-Gear Drive, Double-Reduction Drive, and 2-Speed Double-Reduction Drive. In all three types, the final drive gears and differential mechanism are mounted as a complete driving unit in a standardized, removable differential carrier assembly. This carrier fits into the housing proper and is held in place by cap screws.

"The comparative ease with which a Bevel-Gear Drive carrier can be removed and replaced by a 2-Speed or Double-Reduction drive carrier makes it practical for the truck manufacturer or dealer to stock final drive units, where previously it was necessary to stock the entire rear axle assembly." Mr. Rockwell said. Fleet operators can be accommodated with little expense and no delay. Dealers are in a position to offer the correct rear axle gear ratios for each individual fleet operator's requirements.

"It is reported that certain dealers have found this interchangeability feature to be so advantageous that they can now allow a higher trade-in value on trucks equipped with this axle. Quicker sales, due to the comparative ease with which these used trucks can be readapted to the requirements of new owners, permit these higher allowances, it is claimed.

"Fleet operators are benefited by this interchangeability of driving units in a number of practical ways. Trucks equipped with this new type of axle may readily be converted from one class of hauling to another. For example, dump trucks can be switched from heavy-duty, off-road service to the high-speed transportation of builders' supplies by substituting a Bevel or 2-Speed Drive carrier for a Double-Reduction Drive carrier. This flexibility permits fleet operators, such as highway departments for instance, to adapt these vehicles to seasonal programs.

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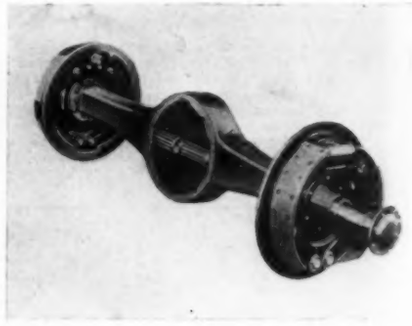


THIS is the Timken "3-for-1" housing assembly, available in three sizes, for trucks from 1½ to 4-tons capacity. . . . Into this housing will fit the standard bevel-gear drive, the double-reduction, or the 2-speed drive. . . . Ratio changes can be made in the fleet's own shop, to suit switching of trucks to different work, as shown in the large picture, top of page.

A 15% INCREASE IN GASOLINE MILEAGE

IS *important* TO A TRUCK THAT

TRAVELS 160,000 MILES IN 15 MONTHS

Whether in one truck, or in a fleet of many trucks, a 15% increase in gasoline mileage means a great saving in operation costs . . . to say nothing of the additional and more important savings in wear and repair. For the increased mileage is due to reduced friction . . . and reduced friction means less wear.

Hundreds of truck and tractor operators — both gasoline and diesel . . . report lower fuel and repair costs with RING-FREE. And thus RING-FREE can also help you to increase your margin of profit. Why not invite your nearest Macmillan Man to prove these facts.

ROHRIG DISTRIBUTING CO.

Distributors of Anheuser-Busch Beers

338 South 8th Street

Phone: B-6941

LINCOLN, NEBRASKA

July 21, 1938

Budweiser
KING OF BOTTLED BEER

Macmillan Petroleum Corp.
530 West 6th Street
Los Angeles, California

Gentlemen:

We take pleasure in advising you the results obtained in the use of Ring-Free Oil in our fleet of eleven trucks, in our distribution of beer and soft drinks. This fleet consists of one EC. Mack, two Dodges, two GMC's, two Internationals, three Fords and one Reo.

One particular case is so outstanding that we present herewith the details. We installed this oil in our EC. Mack 3-ton which hauls 540 cases of beer from St. Louis and returns a like number of empties, this being a 1000 mile round trip from Lincoln and made in 36 hours, with a pay-load of 11½ tons. The drivers were not advised of the change of oil and on the first trip reported that they were able to make hills in third gear that could previously be negotiated only in second gear.

This truck is 15 months old and has completed 160,000 miles. Through the change to Ring-Free Oil we have been able to increase our gasoline mileage from the former 6 miles per gallon to 7 miles, or a saving of about 16%. Our oil consumption still stands as before at one quart for the 1000 mile round trip.

Yours very truly,
ROHRIG DISTRIBUTING CO.
G. H. Lange
...of Maintenance

MACMILLAN
RING-FREE
MOTOR OIL

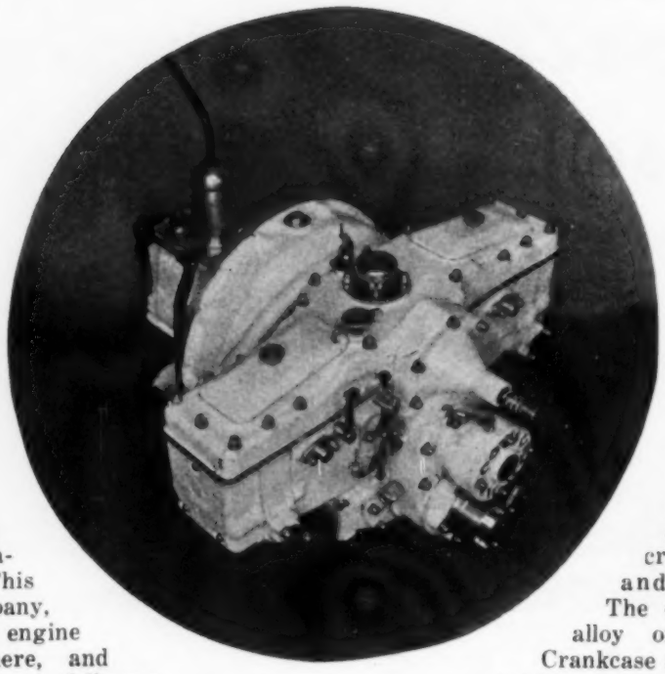
1. GREATER FILM STRENGTH
2. ...RESISTANCE
4. FASTER PENETRATION
5. REMOVES HARD CARBON
... NOT CORROSIVE

MACMILLAN PETROLEUM CORPORATION

50 W. 50th Street, New York
624 S. Michigan Ave., Chicago
530 W. 6th Street, Los Angeles

Covic Diesel—a Small Engine for ½-Tonners

TWO-cylinder opposed job is offered both for original equipment and replacement.



DESIGNED especially for use in half-tonners and other light-capacity automobiles.

IN SPITE of the fact that the "light" automotive Diesel engine is said to be still "in the far distant future," a manufacturer on the Pacific Coast has just announced that he is in production on a small Diesel, for automotive, marine, stationary and other uses. This firm is The Northill Company, Los Angeles, Calif., and the engine is the one illustrated here, and described by the maker as follows: Originally developed in England, where thousands of them are in use, powering light trucks, the engine is called the "Covic Diesel." Stripped of accessories, it weighs but 280 pounds. The job is rated at 15 to 18 horsepower, and is offered for installation in light delivery vehicles, such as those used by laundries, dairies, parcel-delivery companies, bakers, food purveyors, florists, etc., etc. The Northill Company is offering it in "bare engine" form, primarily for use by truck manufacturers; they will also offer it as a *complete* replacement unit, incorporating electric starting and a 4-speed transmission with clutch, as a unit-power-plant. Installation in a ½-ton truck chassis is pictured below.

Claims of the manufacturer feature fuel economy, chiefly, it being said that the vehicles in England which are using this engine are getting 65 to 70 miles per gallon of fuel oil, and using about a gallon of lubricating oil every 2,000 miles. Operating costs are stated to be under ⅛c per mile.

The Covic Diesel is a two-cylinder job, of horizontal-opposed cylinder design, operating on the four-stroke-cycle principle, with overhead valves. Bore and stroke are $3\frac{5}{32}$ x $3\frac{5}{16}$ inches. Piston displacement is 61 cubic inches; rated horsepower is 15 to 18. As before mentioned, weight of the bare engine is 280 pounds. With complete automotive accessories, including clutch, 4-speed transmission, starter and generator, the weight is 425 pounds. Total width is 30 inches; height, 19½ inches; length, 19 inches.

Features of construction, as described by the maker, are as follows: The crankshaft is of the built-up, two-throw type, using steel of 70 to 80 tons tensile strength, with roller bearing supports and a deep-row ball bearing for centering. Needle-type roller bearings are used on the crankpins, with the upper ends of the connecting-rods being bronze-bushed. The cast-iron pistons carry three compression rings and one oil ring each. The crankshaft is both statically and dynamically balanced. The crankcase is of aluminum alloy or cast-iron, as ordered. Crankcase and cylinder blocks are one casting, with a separate casting for the oil sump. Oil passages are cored and no oil piping is used. Water circulation is handled in a similar manner. The sump provides a water-jacket around the lower crankcase, for cooling the lubricating oil, which is also cooled at the oil-pump.

The patented Covic pre-combustion chamber is formed by a screwed-in insert. Cylinder liners are pressed into the block and are held in position by the cast-iron heads. The camshaft is driven by double silent chain from the crankshaft.

The patented water and lubricating oil-pumps are mounted on the same shaft, also driven from the crankshaft. Water passes over and around the lubricating oil-pump as a second means of removing the heat from the oil—(oil-cooling). A modification of the pump assembly (when the engine is used in marine work) provides circulation water for bait tanks, or bilge pumps, as required. The entire pump group is easily accessible by removing six studs.

Lubrication is of the full-pressure type, with the lubricating oil-pump taking the oil from the sump through an edge-type filter, through passages integral with the crankcase, to the main bearings, crank-pins, camshaft, then through hollow push-rods over the rocker-arms and valve mechanism; then back to the sump.

Fuel pump and injectors are of Bosch design and manufacture. The entire fuel-pump assembly is located above the cylinder block, enclosed within an aluminum cover-plate; it can be removed without special tools in a few seconds, it is claimed.

Cylinder head cover-plates are held with three studs, easily removed for setting valve-tappet clearances. Less than an hour is required to

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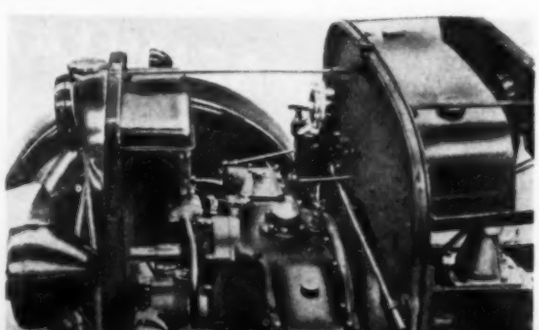


Every AC plug type recommended in the AC Specification Chart has the endorsement of the engineering staff of AC and the engine builders...

That approval is based upon complete knowledge of the normal service to which the power plants will be put. So, when you install the recommended AC type in your vehicles, you know that you are installing the *right* type.

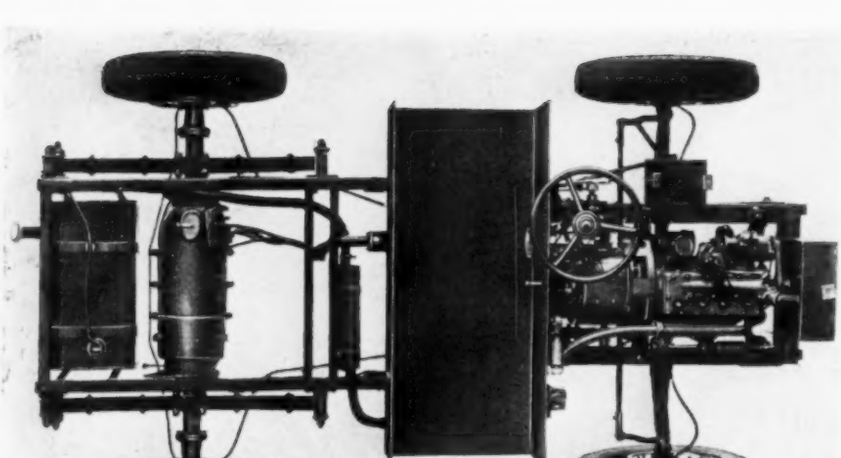
If your vehicles are used in such service that engine operating conditions are abnormal—and this happens only rarely—AC helps you even there. The exclusive AC Heat Range principle can be easily applied to help you get the "cooler" or "hotter" plug type required. A "cooler" plug will correct preignition, too rapid electrode wear, lower electrode breakage, and blow-by. A "hotter" plug will correct chronic sooting.

These Charts are FREE

The AC Specification Chart and Heat Range Chart (AC form A-681) give you complete information. Just ask your AC supplier, or write our Service Department.

Use AC Spark Plugs for <u>BETTER</u> Engine Performance

AC SPARK PLUG DIVISION • *General Motors Corporation*
FLINT, MICHIGAN



New Walker Delivery Unit Has Gas-Electric Drive

THE WALKER Vehicle Company, Chicago, Ill., after 34 years of continuous activity in the electric truck industry, announces the addition of a new gas-electric delivery unit, especially designed for start-and-stop, door-to-door service. The idea behind this venture was to design a truck that could cover longer routes than the electric truck, without losing any of its advantages.

The new truck is called the Walker "Dynamotive." It will be manufactured in drop-frame and straight-frame models, in sizes from "light-duty" to 10,000 lbs. gross vehicle weight. Power plants will include both 4 and 6-cylinder engines. Standard bodies, of steel construction, will be available for the drop-frame types. A 9-foot body (semi-cab-over-engine) will be available, with bucket step, for the

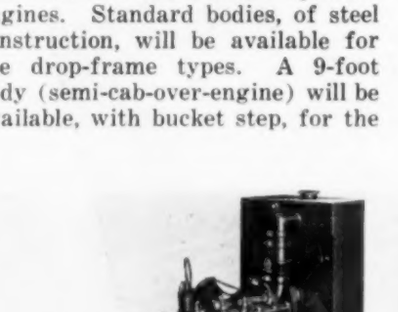
straight-frame chassis illustrated.

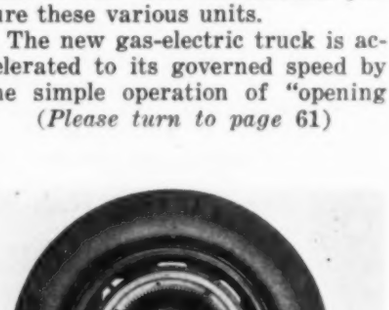
The following technical description comes direct from Walker's engineers: In the Walker Dynamotive truck, the clutch, transmission and propeller-shaft are eliminated. The "dynamo" is mounted on the flywheel housing of the engine, and occupies less space than a conventional clutch and transmission. The driving motor is located transversly in the rear axle, and is connected to the dynamo only by electric wires. The axle body around the armature forms the magnet frame of the motor, in which the field-coils and poles are mounted. The armature of the motor is built on a hollow shaft, to one end of which the differential is mounted. Drive shafts extend from the differential to the reduction gears. The gear cases are a modification of conventional wheel hubs on full-floating rear axles. To these cases or hubs are bolted forged steel wheel discs.

The gearing, within these hubs, forms the Walker "Balance Drive." This consists of a pinion on the drive shaft; two idler or transmitting gears mounted on Timken bearings, supported by arms on the stub axles; and an internal or driving gear, rigidly keyed to the gear case of wheel hub. The pinion on the drive shaft transmits the power from the motor equally to the two idler gears, each in turn transmitting their power to opposite sides of the internal or driving gear. No bearings support the pinion, it being in constant mesh with and floating between the two idler gears, insuring an equal division of its turning effort to each of the two idler gears. All gears are in constant mesh and run in a bath of oil. The illustrations picture these various units.

The new gas-electric truck is accelerated to its governed speed by the simple operation of "opening

(*Please turn to page* 61)

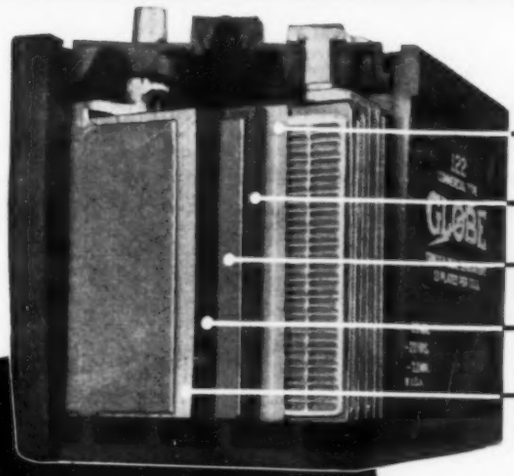




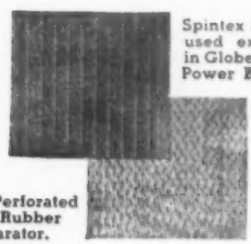
THESE three views show the working parts of the new Walker Dynamotive truck. At the left is the engine and dynamo assembly, with radiator. . . . In the center is a plan-view of the rear axle, with cover removed, showing electric driving-motor, differential and driving shafts. . . . At the right is a view of the internal-gearing which does the driving, the pinion on the axle-shafts not being shown. . . . The accompanying text fully explains how this gas-electric vehicle works.

GLOBE

Dual Insulated COMMERCIAL BATTERIES



GUARD PRODUCTIVE TIME OF TRUCKS AND DRIVERS CUT COST PER BATTERY MILE



Spintex Separator, used exclusively in Globe Spinning Power Batteries.

Globe Perforated Hard Rubber Separator.

LOSS of driver's time . . . delayed deliveries . . . rising operating costs . . . these are penalties of too early and too frequent battery break-downs. Guard against them with Globe Dual Insulated Commercial Batteries—get the dual value of increased productive time of trucks and driver, lowered cost per battery mile.

Dual insulation—consisting of wear-defying Spintex separators, plus an extra set of perforated rubber separators — resists vibration and shock, retards shedding, withstands high temperatures and mechanical strains, delivers more miles of high capacity, low cost performance. Get all the facts — return the coupon today.

GLOBE-UNION INC., *Milwaukee, Wisconsin*

THERE IS DUAL VALUE IN GLOBE DUAL INSULATED COMMERCIAL BATTERIES

For delivery and service trucks, taxicabs, salesmen's, police and utility cars — all light commercial vehicles.

Extra Capacity for Extra Loads! Globe Heavy Duty Batteries for all types of bus and heavy duty truck service.

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AUTOMOTIVE - HEAVY DUTY - RADIO - POWER & LIGHT

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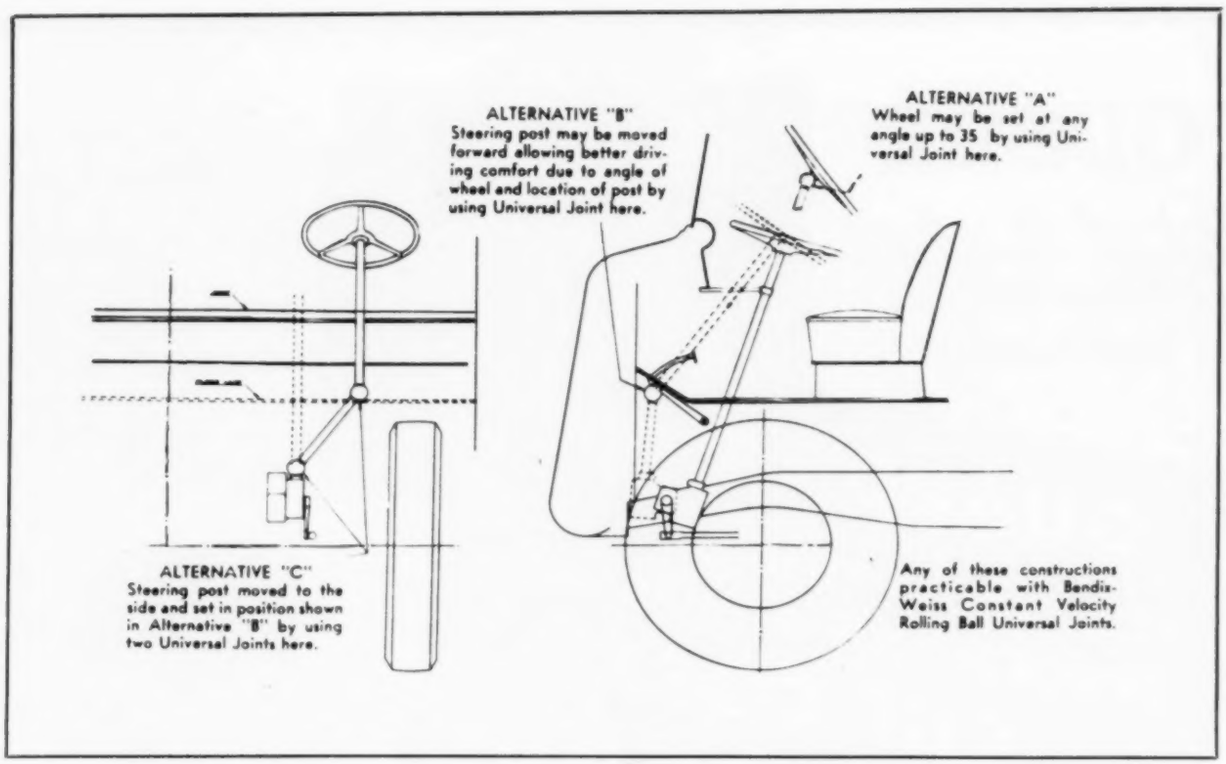
Send us complete information on the ☐ new Globe Commercial Batteries ☐ Globe Heavy Duty Batteries for gas engines ☐ for Diesel engines.

Name .....

Company .....

Address FO538


ALTERNATIVE "B"
Steering post may be moved forward allowing better driving comfort due to angle of wheel and location of post by using Universal Joint here.
ALTERNATIVE "A"
Wheel may be set at any angle up to 35 by using Universal Joint here.
ALTERNATIVE "C"
Steering post moved to the side and set in position shown in Alternative "B" by using two Universal Joints here.
Any of these constructions practicable with Bendix-Weiss Constant Velocity Rolling Ball Universal Joints.

Bendix *offers* Universals *for* Steering

New Development Permits Many Variations in Locating Steering Columns

THE ABOVE diagrams show a few possibilities which permit the placing of the steering wheel and post in almost any desired location. With the Bendix-Weiss constant-velocity rolling-ball universal joint, as manufactured by Bendix Products Division of Bendix Aviation Corporation at South Bend, Indiana, a wide variety of arrangements are entirely practical.

This joint, as illustrated below, is built on the principle of a ball bearing and consists merely of two yokes and steel balls; and regardless of angularity, (which may be as high as 35 degrees from the straight), it is said to be so efficient that steering effort is no greater than as if no joint were used. The constant velocity characteristic, as compared with fluctuating velocity (accelerating and decelerating 4 times per revolution), which occurs with the ordinary universal joint, is naturally very desirable, and particularly so at the higher angles.

Due to the rolling contact, the joint is extremely durable, and back-lash does not develop, according to Bendix engineers.

In the past few years there have been many improvements in automotive vehicles; but little has been accomplished toward locating the steering wheel and post so that the maneuver-ability of the vehicle will be bettered with less effort on the part of the driver, Bendix officials state.

Brakes have been perfected so that vehicles can be stopped much more quickly and with a minimum of energy expended, even though speeds are now much higher than ever before. The increased speed and traffic and the number of times an hour that a driver is subjected to the hazard of passing other vehicles, sometimes on narrow highways, makes the accurate and easy control of the steering of a vehicle about as important as it is to be able to stop a vehicle quickly.

TWO VIEWS of the Bendix-Weiss constant-velocity, ball-bearing universal joint, which is being offered for use in steering-post work, to permit variations in mounting in truck cabs.

In the case of trucks and buses, where drivers often run for many hours at a time, in all kinds of weather conditions, and with the added pressure of meeting a schedule, it would seem that they are entitled to all possible consideration, in helping to control the vehicle efficiently, as well as to eliminate those factors leading to unnecessary fatigue. The safety of passengers and value of cargoes of merchandise are likewise most important factors.

There are many vehicles, particularly of the cab-over-engine type, which have steering-posts mounted with very little incline; very often they are practically vertical. This sometimes makes it awkward, uncomfortable, and fatiguing for the driver. He must straddle a post and steer a wheel that is in almost a horizontal position. This is quite the opposite from the position of

(*Please turn to page* 54)

Detroit Street Railways select Exides for one of the country's largest fleets

OPERATORS of a fleet of buses and operators of a fleet of trucks or commercial cars have much in common. Both types of vehicle must be able to go on schedule, and keep on the road. They both must pay their way in terms of hard cash. That is why the battery experience of bus operators can have a real meaning for you.

Detroit Street Railways operate one of the largest bus fleets in the country—1267 units in all. In ordering 750 new buses such as the one shown above, this operator specified Exide Batteries exclusively. Exides were selected because of the confidence Detroit Street Railways feel in the dependability and economy of these batteries.

This is a confidence that is shared by fleet operators throughout the country, and it is based on practical experience. Exides are built for hard, continuous service, for extra power, long life, and low maintenance costs. There is a line of Exides that take care of 90% of all commercial vehicles, in addition to the Exide heavy-duty line for large trucks. Your Exide Wholesaler can give you full details.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Chevrolet Truck Finishes Test-Run

CHEVROLET'S "Long Distance Safety and Dependability Truck" arrived back in Detroit last month, after a six-months' cross-country run, with over 50,000 miles recorded by AAA sanction.

The truck, by way of extra measure, carried its two-and-a-quarter-ton payload to the top of Pike's Peak, making the climb under adverse conditions and entirely without special preparation. It was driven by Louis Unser, of Manitou Springs, Colo., for the past three years the winner of the annual Pike's Peak road race.

Harry Hartz, well-known former race driver, who has piloted the unit on the five-months' tour in which it touched every state, was at the top of the Peak to congratulate Unser, as were Nels Kullgren, Ray Parnham, James Reilly and Harry Hyssong, all of the AAA. Stanley Reed, official AAA observer who has been with the unit since the start of its travels on Jan. 11, accompanied Unser to the top. Previous to the Peak run, 52,319.7 miles of certified operation on commercial highways of the country had been recorded for the unit.

Before making the Pike's Peak climb, the truck underwent no special preparations whatever. Spark plug gaps were the same as for the earlier part of the run, in which it plumbed the depths of Death Valley, 279 feet below sea level. So were carburetor jets, which frequently require special adjustment for operation in high altitudes. In spite of this fact, Unser reported, the engine never missed fire during the entire 12½ miles of switchbacks and steep grades to reach the 14,109-foot peak.

In addition to setting new official records for economy, dependability and power, the unit under Hartz' piloting set a new all-time distance mark for AAA-sponsored truck runs, exceeding the longest previous by more than 20,000 miles. It has also achieved an unblemished record from the safety standpoint, as during the entire run, in all kinds of weather, and road conditions, not even a minor accident or a scratched fender was experienced.

●

More Safe Drivers Receive Awards

FOURTEEN employee drivers of trucks owned and operated by the Whitin Machine Works of Whitinsville, Mass., who have attained an aggregate of 86 years of driving without an accident were honored by the management, fellow drivers, and the American Policyholders' Insurance Company when they were presented with medals or seals denoting the number of years each has driven safely. The presentations were made at a drivers' meeting held in the company's garage assembly hall recently.

Gold medals denoting either five or ten-year safe driving records were presented to six of the fourteen drivers by O. T. Sundlie, American Policyholders' safety engineer, and certificates and seals representing records of one to eleven years, were presented by P. B. Walker, maintenance engineer in charge of the Whitin Machine Works truck fleet, on behalf of the management.

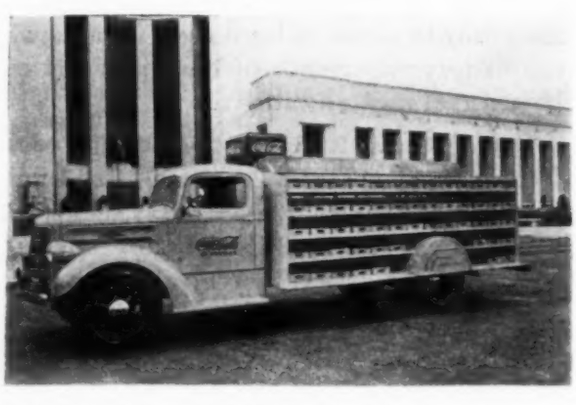
Five, ten and more years' cooperation with American Policyholders' fleet insurers has resulted in many creditable employee records for safe driving of trucks. Five and ten years of safe driving is rewarded with American Policyholders' "Awards of Merit"—gold medals on which the recipient's name and the years during which his record was established. Certificates are presented by the safe driver's employer at the end of one year and at each successive anniversary of the record the recipient receives a seal denoting consecutive years up to five, and then ten. They are the employer's commendation that the driver is a safe and dependable employee.

In the Whitin fleet, the awards in recognition of safe driving records marking 26,832 working days were as follows: Eleven-year seal and ten-year gold medals, which were due last year, to Archie Bolliver, William D. Veau, Lester J. Wallace and Clarence A. Williams; five-year gold medals to Daniel Lemieux and James Stewart; certificates of merit (one-year records) to Raymond Cormier, Harlan Goodwin and Charles Partridge; two-year seal to Ralph Roberts; three-year seal to Arthur White; six-year certificate and seal to Aubrey Hamilton; and nine-year seals to Alphonse Guertin and Ernest J. Leonard.

●

New Bottle Unit Carries 202 Cases

FOR retail delivery of Coca-Cola in Dallas and the area known as the Oak Cliff-Fort Worth pike sector, this new model EF Mack truck has recently been placed on the job.

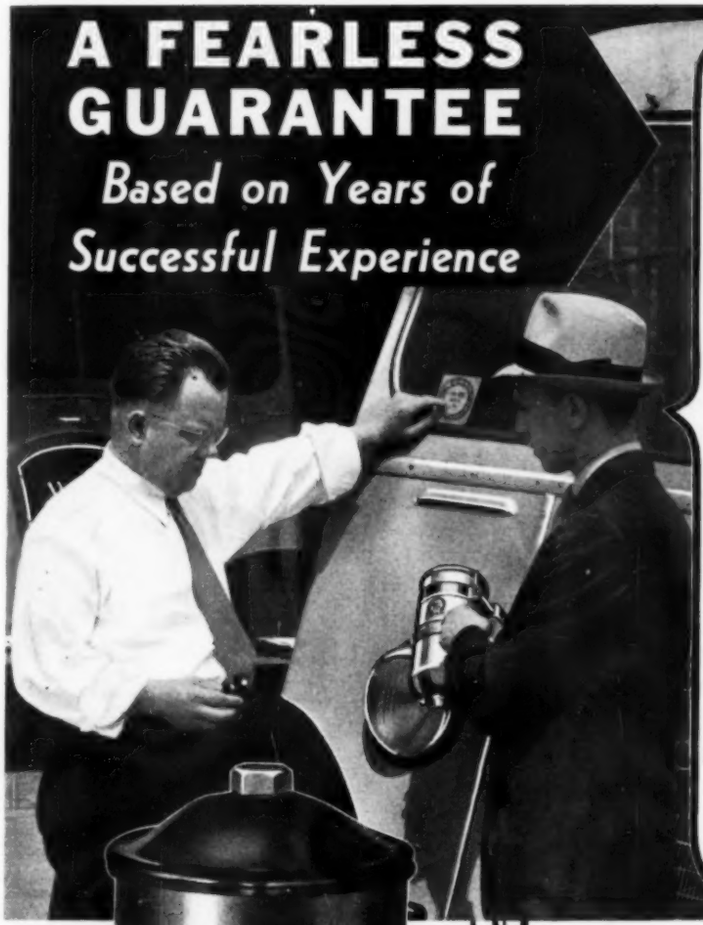


Owned by the Coca-Cola Bottling Company of Dallas, Texas, this new truck, when fully loaded, hauls 202 cases of the popular soft drink and is playing a great part in keeping numerous retail outlets in that sector well stocked.

We are told that the balloon tires (General's) help greatly in reducing shock-damage to the glass cargo, especially when empty bottles are being returned to the bottling plant.

A FEARLESS GUARANTEE

Based on Years of Successful Experience



TRY A FRAM OIL & MOTOR CLEANER FOR 90 DAYS. THEN, IF YOU FEEL YOU CAN AFFORD TO BE WITHOUT IT, OR WOULD RATHER HAVE ANY OTHER OIL FILTER YOUR MONEY WILL BE CHEERFULLY REFUNDED!

THERE'S A FRAM FOR EVERY VEHICLE IN YOUR FLEET!

And Fram's patented Dip-stick Oil Condition Gauge takes the guesswork out of cartridge changes. When you can no longer read the word "CLEAN" through the oil film, it's time to change your Fram cartridge.

CLEAN — IF YOU CAN'T SEE "CLEAN" CHANGE FRAM CARTRIDGE

Fram's many exclusive advantages are summed up in this one fact: **It actually costs less to enjoy Fram protection than to let your motor wear out without a Fram.** Costs less in oil consumption. Costs less in maintenance, repairs. Costs less in motor **performance.**

Fram can afford to make the fearless guarantee above because *we know* from years of experience that Fram really does the job. Does more than remove dirt . . . . this different cleaner takes out sludge, abrasives, fine carbon particles and harmful impurities. That's the reason for its sensational success.

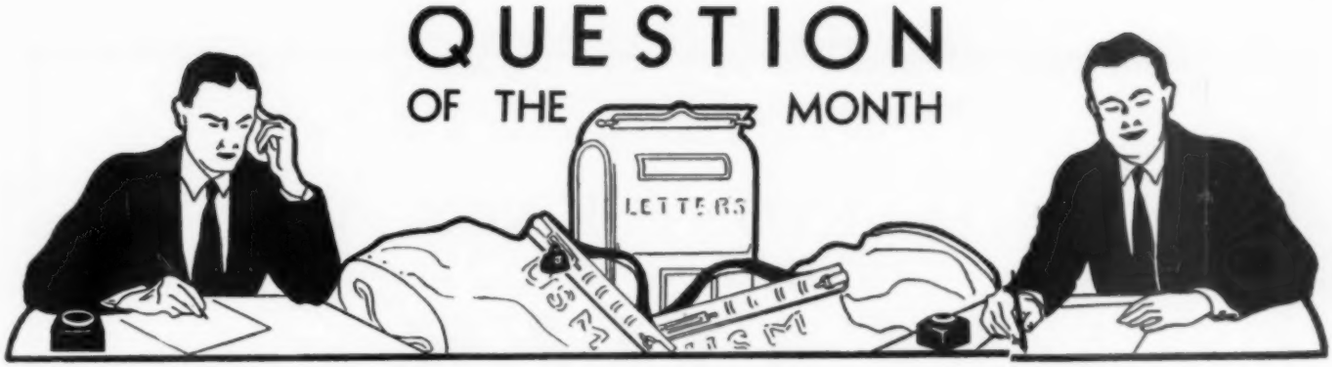
You take no gamble. Get your jobber on the phone now and have all or part of your fleet Fram equipped. We'll buy 'em back cheerfully at the end of 90 days if you feel you can afford to be without them. Fleming Mfg. Co., East Providence, R. I., U. S. A.

FRAM *Oil & Motor Cleaner*

PAYS FOR ITSELF EVERY 7000 MILES

A S I S
EXPOSITION
and MARKETING
CONGRESS
NAVY PIER · CHICAGO · DEC. 5 TO 10, 1938

QUESTION OF THE MONTH



How Do Other Fleets Handle Tire Purchases?

(Here's How You Can Get the Complete Picture on this Controversial Subject:)

THERE is only one *practical* method of finding out, and that is through a department such as this, in which a questionnaire is published, and a representative number of good fleet operators provide the "answers."

The questionnaire is the first step. In return for a few minutes of your time in filling it out and mailing it back to us, we send you a private copy of the complete summary. In other words, *we* do the *hard* part of it—collecting, summarizing and digesting the answers received. And you get the benefit of knowing what makes other fleets are using, what their maintenance practices are, what short-cuts they take, etc.

Names of fleets or executives are *never* mentioned or disclosed in any way. The only thing we give out is totals, trends, popularity of makes, etc. So do not hesitate on that *score. You can trust us!*

We feel sure that once you participate in this department, you will feel amply rewarded with the results, and will look forward to this feature every month. Your cooperation will be appreciated. . . . The more answers, the more representative the results. . . . Thanks, a lot.—H.C.F.

P.S. . . . No information on retreads is asked for in this questionnaire—just *new tire* data. . . . Next month we will give you a separate questionnaire on Tire Retreading.

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York, N. Y.)

Question No. 90—Tires

How many miles (average) do you get from NEW tires used in your fleet? (Please fill in *averages* below)

Light Trucks.....Miles (avg.) Passenger cars.....Miles (avg.)
Heavy Trucks.....Miles (avg.) Buses (if operated).....Miles (avg.)

What is your principal cause of tire failure? (Please check ONE only)

☐ Tread Wear; ☐ Sidewall Failure; ☐ Tread or Sidewall Cuts; ☐ Blow-Outs; Others.....

Do you change the wheel-positions of tires, in order to increase tire mileage? ☐ Yes; ☐ No.

When replacing tires, what size do you use? ☐ Standard size; ☐ Over-size; ☐ Some of each.

Please list the MAKES of tires you are now using.....*(Confidential)*

What MAKE, in your opinion, is best for heavy-duty truck and bus work?.....*(Confidential)*

How do you purchase tires? ☐ Buy them outright; ☐ Rent them on a mileage basis.

What is your source of supply? ☐ Tire Retailer; ☐ Tire wholesaler; ☐ Tire Mfr.; Others?.....

On what basis do you select tires? ☐ Brand; ☐ First-Cost; ☐ Performance and Cost; ☐ Dealer Service

Do you use puncture-proof tubes?.....If so, how do you find them? ☐ Satisfactory; ☐ Unsatisfactory

Who does your tire inspection, inflation, etc.? ☐ Our own men; ☐ Tire dealer or other supplier

How often is this done? ☐ Daily; ☐ Weekly; ☐ Every 2 Weeks; ☐ Monthly

Who does your *minor* tire repairs? (Fix flats, etc.) ☐ Our own men; ☐ Tire dealer or other supplier

Who does your *major* tire repairs? (Casing work, etc.) ☐ Our own men; ☐ Tire dealer or other supplier

What service, rendered by your tire dealer, do you consider most important?.....

What tire service, *not* now obtainable, do you think is desirable?.....

What is your most important problem in connection with tires?.....

How are MOST of your vehicles operated? ☐ Slow-speed, city work; ☐ High-speed, inter-city work.

REMARKS—(Let's hear from you).....

.....

.....

How many vehicles in your fleet? (Please indicate below)

Trucks..... Tractors..... Trailers..... Pass. Cars Buses Miscellaneous

Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.

Swap your transportation experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm.....

Address.....

City and State.....

Your Name.....*Position*.....

LET EVERYONE KNOW THAT

CANCER

CAN BE

CURED

BUT TREATMENT MUST BE STARTED IN TIME

Pin $1.00 or more to the coupon below. It will be spent

1. To enable this Committee to maintain its offices, to distribute free literature and exhibits in schools and other institutions, and to direct annually thousands of sufferers to physicians and hospitals where they can receive treatment, either free or in proportion to their ability to pay.

2. To furnish you with a supply of labels for your packages.

3. To send you a new, highly informative magazine, the Quarterly Review of the New York City Cancer Committee, containing valuable articles on the diagnosis and treatment of cancer.

Cancer now costs America 140,000 lives a year. You may save one of these lives by sending your dollar today.

---------- *TO* ----------

NEW YORK CITY CANCER COMMITTEE

130 EAST 66th STREET, NEW YORK

I enclose $1.00. Send me the Quarterly Review for one year, and also a supply of labels. Please devote the remainder to your work.

Name.....

Address.....

If you are not a resident of New York City or Long Island, write for information to the American Society for the Control of Cancer, 1250 Sixth Avenue, New York.

For ROAD and SHOP

(Some are New; Others Not)

Chrome Refinishing Kit

A NEW method for removing rust from chromium-plated auto parts and protecting the chrome so that it stays bright and shiny is announced by the du Pont Company, Wilmington, Del.

The new development will be marketed by du Pont in the form of a "Chrome Refinishing Kit," which contains a can of protective lacquer, a tube of a specially formulated paste cleaner, and a brush for applying the lacquer.

The new chrome lacquer dries in 15 minutes, forming an invisible film which protects metal bumpers, radiator shells, hub caps, etc., against rust and corrosion caused by moisture, salt spray, fog and road chloride.

The makers recommend cleaning the chrome parts first with the cleaner, which will remove rust and stains, restoring the original lustre of the chrome. It leaves no oily film to prevent the lacquer from adhering. The lacquer should then be applied with a brush. The film which it forms is colorless and practically invisible, giving the metal a waterproof coating which will not chip or peel from exposure, it is claimed.

The product is not restricted to automotive parts nor to chromium-plated metals. The lacquer gives protection to brass, bronze, copper, steel, nickel and other metals, such as building hardware and household accessories. The cleaner is not intended for household articles, and is essentially for automobile chrome. Other metals may be polished with milder metal or silver polishes before applying the lacquer. Since most polishes leave an oily film, which may prevent the lacquer adhering properly, it is recommended that the metal be rubbed with naphtha or other solvent after polishing. Chrome auto parts in good condition, and on which a special cleaner is not necessary, should be similarly treated before applying the lacquer.

For complete details, prices, etc., address E. I. du Pont Company, Wilmington, Del. . . . Mention of FLEET OWNER, when writing, is always appreciated.

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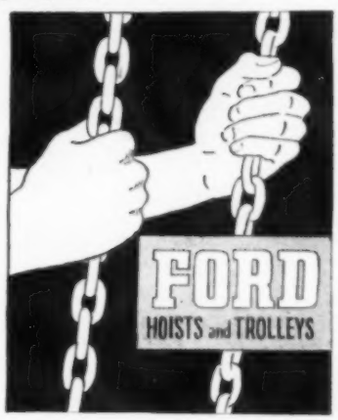
Chain Hoist Catalog

A NEW catalog, No. 38, has recently been issued by the Ford Chain Block Division of American Chain & Cable Company, Inc., Philadelphia, Pa.



In addition to the regular Ford line of spur-geared, screw and differential chain hoists, several additional items have been added, such as jib cranes and differential hoists with ball bearing mountings. The new ball-bearing Ford spur-geared hoist is featured in the catalog.

Copy will be sent on request, free of charge. Address Ford Chain Block Division, American Chain & Cable Co., Inc., Philadelphia, Pa. . . . Mention of FLEET OWNER always helps

•

High-Tensile Steel Data

A NEW eight-page booklet on U.S.S. High Tensile Steels has recently been published by the United States Steel Corporation, Pittsburgh, Pa.

This booklet contains not only technical information which is of particular interest to engineers; it also contains information, written in such a manner as to be readily understood by the layman, data of a general nature concerning applications, advantages and fabrication of U.S.S. High Tensile Steels.

The first two pages deal briefly with six outstanding advantages of the U.S.S. High Tensile Steels—U.S.S. Cor-Ten, U.S.S. Man-Ten and U.S.S. Sil-Ten. On following pages are shown charts of chemical compositions, physical properties and miscellaneous information, all of definite value to designing engineers.

Page 6 of the booklet is devoted to the fabrication of U.S.S. High Tensile Steels. On pages 7-8 various applications are described, and included on page 7 are attractive illustrations of interesting installations of these.

Copies of this eight-page booklet may be obtained free by writing to Carnegie-Illinois Steel Corporation, 434 Fifth Avenue, Pittsburgh, Pa. . . . Mention of FLEET OWNER always helps.

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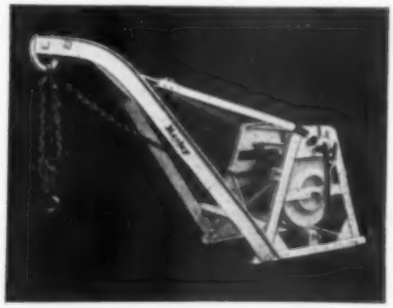
Manley Wrecking Crane

THIS new 3-ton wrecking crane has a boom which is adjustable to three positions; it will handle all types of cars.



One man can lift the rated capacity of the crane (6,000 lbs.) by means of a handle located inside the truck body, or by one operated from the ground. The gear-ratio is 12 to 1 and the chain reduction is 2 to 1, making a total reduction of 24 to 1.

The drum can be free-wheeled. It is provided with a quick-return, for reeling in the chain. Power-drive units can be furnished, in connection with a power-take-off on the transmission. A guard protects the operator from injury and the parts from the weather.

For further details address American Chain & Cable Company, York, Pa. . . . Mention of FLEET OWNER is always appreciated.

Doubles Brake Pressure

A DEVICE called the "Hydraulic Brake Pressure Dub-Bul-Up" has recently appeared, the purpose of which is to increase the pressure applied to hydraulic brake pedals, in the ratio of 2-to-1.

This device can easily be installed in the brake line of any truck, bus or

car now equipped with standard hydraulic brakes. An adjustable safety shut-off valve protects the brake system from excessive pressure. The increase in pressure is obtained by the use of a small-bore, high-pressure cylinder.

It is self-contained, requires no outside attachments and needs no maintenance or other attention, according to the makers, who state that it will neither rust nor corrode. The "Dub-Bul-Up" device was designed especially for commercial vehicles. One size fits all jobs.

For complete details address Vickers Manufacturing Co., 46 Skillen St., Buffalo, N. Y. . . . Mention of FLEET OWNER is always appreciated.

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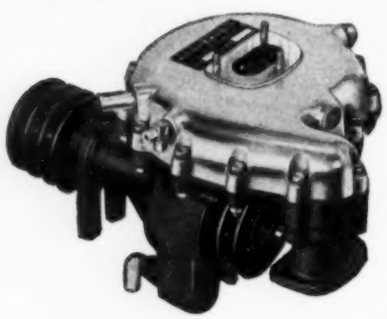
Supercharger for Fords

THE development of a supercharger for Ford V-8's, designed to increase horsepower 38 per cent, has been announced by McCulloch Engineering Co., Milwaukee, Wis. In addition to providing up to 124 h.p., it is said to give from 7 to 19 per cent increase in fuel mileage.



The new supercharger is illustrated here. It is designed to be mounted on the bracket ordinarily provided for the Ford generator and is imposed between the intake manifold and carburetor. Drive is by special belts from the crankshaft, and the generator is driven separately by another belt, after being mounted on the cylinder head by means of a new bracket which is provided.

This supercharger consists of a precision-engineered blower, the rapidly revolving rotor blades pumping the mixture into the cylinders after thoroughly vaporizing it.

This device will fit all Ford V-8 engines produced since 1934 and may also be adapted to other Ford V-8's. . . . For further details address McCulloch Engineering Co., 1327 S. 70th St., Milwaukee, Wis. . . . Mention of FLEET OWNER helps.

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"Steelductor" Ignition Cable

A NEW type of ignition cable, said to be electrically, mechanically and thermally superior, has been announced by the Sterling Cable Corporation, Port Huron, Michigan. The cable is known as "Sterling Steelductor," and embodies new construction principles, employing an electrical conductor of 7 strands of stainless steel wire, instead of the conventional 19-strand copper conductor.

Cable employing this stainless steel conductor has come into widespread use on aircraft engines and has been

under manufacture for more than four years, and for the past two years a large percentage of naval aircraft have been among its many users, it is declared.

The manufacturer states that laboratory and service tests on all types of automotive equipment during this period have demonstrated that the new cable makes possible these advantages:

1. Spark discharge with lower battery voltages—a characteristic particularly desirable for winter starting, when lower temperatures and increased starting load on battery cut down the electrical energy delivered to the ignition system.

2. Increased top speeds and greater engine efficiency and power for hard pulls in low gear. Misfiring at high engine speeds is practically eliminated, not only increasing power and speed, but effecting greater fuel economy.

3. Lower idling speeds as the result of greater duration of the spark discharge. Idling speeds can be reduced without resorting to a wider spark gap—the method usually employed to give smooth idling.

4. Spark plug life is increased by damping out unnecessary peak currents. Spark plug electrode wear resulting from capacitance component of spark discharge is thereby reduced.

5. Burning and pitting of breaker points is also reduced by the damping effect of the steel conductor cable, which minimizes arcing at the breaker points.

6. Misfiring from fouled plugs is reduced because more electrical energy may be lost through this condition without causing misfiring.

7. Greater mechanical strength of conductor prevents corona between conductor and insulation. The stainless steel conductor will not stretch when cable is pulled through conduits, thereby avoiding formation of air pockets inside cable which occur when conductor stretches and its diameter is reduced.

8. Effect of heat on insulation is minimized by the poor heat-conducting qualities of stainless steel conductor, which are 20 times less than the heat-conductivity of copper. Since the stainless steel conductor has about 1/3 the cross sectional area of the copper conductor, the rate of heat transfer into the insulation is 60 times less for the stainless steel conductor.

9. As a result of these advantages, plus the fact that it has only 7 strands of stainless steel, compared to 19 strands of copper in conventional cable, Sterling Steelductor reduces the intensity of electrical oscillations in the ignition system which cause radio interference.

The foregoing description has been prepared by the manufacturer, who will be glad to send further details and free samples of the new cable. . . . Address Sterling Cable Corporation, Port Huron, Mich., if interested, and mention this article please.

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Replacement Cartridges

THE FLEMING Mfg. Company, East Providence, Rhode Island, makers of the FRAM Oil and Motor Cleaners, have announced a P-½ FRAM Replacement Cartridge which can be used by owners of cars, trucks, buses, etc., equipped with filters of other makes.

The new FRAM Replacement Cartridges employ the well-known FRAM chemically-treated, waste-pack method of filtering motor oil. The Fleming Mfg. Company states that the FRAM Replacement will sell at a price no higher than conventional filters.

For complete details, prices, discounts, etc., address Fleming Mfg. Co., East Providence, R. I. . . . Mention of FLEET OWNER always helps.

"Resistoflex" Tubing

THIS new tubing, called "Resistoflex" is made of a new flexible material that is claimed to be inert to the action of gasoline, oils and organic solvents. It is said to retain its flexibility throughout a wide temperature range.

Manufacture of this tubing has started, in sizes up to and including

½-inch inside diameter. It is intended chiefly for fuel and brake lines, as well as lubrication systems of automotive equipment; also in fuel and oil handling equipment.

At present, "Resistoflex" is offered in the form of tubing in standard sizes. Gaskets, washers, packing, diaphragms and sheet material are scheduled for later production. Specially-designed couplings have been developed for use with this new tubing, each tube length with its couplings being ordinarily supplied as a unit.

For complete details address Resistoflex Corporation, 370 Lexington Ave., New York, N. Y. . . . Mention of FLEET OWNER is always appreciated.

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New Fibre-Glass Battery

A LINE of new, oversized batteries with a new type of improved "fibre-glass" insulation is announced by USL Battery Corporation, Niagara Falls, N. Y.

These new batteries are said to be moderately priced and to be available in various sizes and types for commercial cars, passenger cars, trucks and buses.

The insulation consists of a new type of glass-fibre mat, which has been thoroughly tested in USL industrial batteries. A special acid-proof bonding material is used to hold the glass fibres together permanently, it is claimed.

Advantages pointed out by the maker are that this type of insulation increases plate life and maintains high capacity by preventing the loss of active material from the plates. Oversized plates are used, to provide extra capacity.

For complete details address USL Battery Corporation, Niagara Falls, N. Y. . . . And if you mention FLEET OWNER, we'll appreciate it.

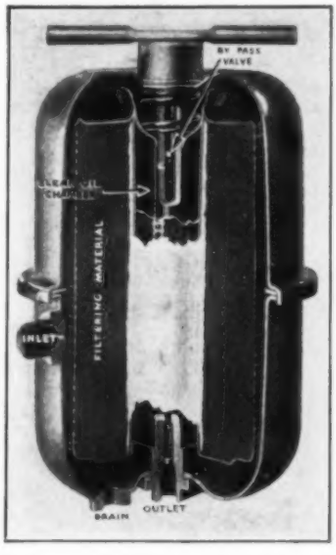
New AC Oil-Filter

A NEW type of oil-filter for cars and light trucks is offered by AC Spark Plug Division of General Motors, Flint, Mich. It is illustrated here in cross-section, and is called the "AC Kleer-Kleen".

The one-piece filtering element is composed of "igneonite" material, a ceramic filtering material which cannot disintegrate, it is claimed. Replacement of the element is suggested every 8,000 to 10,000 miles—or whenever the dip-stick shows that the oil is dark in color.

In operation, dirty oil enters the filter under pressure, passes through the filtering material which collects the foreign matter, and then passes through to the clean oil chamber, from where it returns to the engine through the outlet. A drain is provided, as shown.

An interesting development is the use of a new flexible tubing in conjunction with this filter. Built to aeroplane standards, the new tubing is



made of neoprene (synthetic rubber) and will be used in place of copper tubing formerly used.

One type of the new filter will fit all passenger cars and light trucks. It can be used as a replacement unit, or as a new installation. . . . For further details address AC Spark Plug Division, Flint, Mich. . . . Mention of FLEET OWNER is always appreciated.

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"Benite" Waterproofs Wood

WARPING, shrinking and rotting of wood parts in Fruehauf trailers are eliminated, it is said, by the use of a special water-proofing material known as "Benite".

All filler, uprights and other pieces are treated before being cut to final shape, resulting in a permanently perfect fit since they cannot shrink or warp, it is claimed.

Benite is neither sticky, pitchy nor odorous. Because of its chemical affinity for wood cellulose, it thoroughly saturates each piece of wood through to the core. This product is also termite-proof, tests made in the Florida Everglades reveal.

For further details address Fruehauf Trailer Company, Detroit, Mich., mentioning FLEET OWNER if you please.

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New Lathe "Catalogette" Offered

TWO new small Atlas back-geared, screw-cutting lathes, swinging diameters up to 6 inches are announced in a new small "Catalog 29" recently issued by Atlas Press Company, Kalamazoo, Mich. . . . All phases of design are described, such as spindle bearings, speed range, bed, belt-drive, etc. . . . Free copies on request. . . . Mention FLEET OWNER, please.

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New "Permite" Piston

A NEW aluminum alloy piston with a "V-bridge" structure, cast integral with the skirt of the piston, is announced by Aluminum Industries, Inc., Cincinnati, Ohio. The "V" structure bridges the gap in the vertical slot on the minor thrust face, and is said to control expansion and contraction and to prevent skirt collapse. . . . Here is the *maker's* description:

"The full skirt contacts the cylinder over a large area, and is not subject to localized high bearing pressures. Evenness of wear and longer life for the piston are thus assured. The design allows slot construction without excessive skirt flexing, which unseats rings, decreases oil mileage and causes blow-by. In addition, the 'V-bridge' structure also assists in heat transfer, for in joining both sides of the skirt the flow of heat becomes uninterrupted."

Called the Permite "Permatrol" Piston, it is produced entirely by the permanent mold process and is heat-treated for high strength and good wearing qualities, it is declared.

Other claims for the new piston are minimum clearance at all temperatures; freedom from friction; maximum oil mileage and gasoline economy; full power, with quieter, smoother and more economical engine operation. . . . For further details address B. V. Keller, c/o Aluminum Industries, Inc., Cincinnati, Ohio. . . . Mention of FLEET OWNER always helps.

TRADE LITERATURE

(Selected on Its Own Merits)

EACH MONTH your Editor selects a batch of new trade literature which, in his opinion, may interest fleet men. . . . This is strictly an EDITORIAL feature and is NOT limited to advertisers' publications only. . . . Please do not confuse it with the "mass listings" so common in other publications. . . . The purpose of this page is to furnish interesting literature to fleet men, CONVENIENTLY, hence the post-card, on which no postage is needed. . . . Try it, and if anything is not as represented, be sure to come back and tell us.—H. C. F.

433. WHEEL ALIGNMENT MANUAL. This is a pocket-sized safety-test and correction manual. . . . The title is *"What Every Service Man Should Know."* . . . Its 48 pages are profusely illustrated with 38 diagrams and 82 photographs featuring all phases of wheel alignment and safety-test work. . . . Contents include exposition of steering-geometry, types of spring and front-end construction, checking procedure for caster, camber, etc. . . . Place Number 433 on our post card if you'd like a free copy by mail.

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434. MACK TRUCK LITERATURE. . . . If you are one of those boys who think of Mack only as a heavy-duty, highway giant, you're not up-to-date on your trucks. . . . Three new *light-capacity* Macks are illustrated and described, with complete specifications, in new attractive folders covering Models EE, EF, and EG. . . . Number 434 on our post-card brings free copies of these folders, *by mail*, with no obligation to buy anything, now or any time.

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435. REFACE VALVES WET. . . . Wet-grinding of automotive parts seems to be all the rage just now. . . . Be among the first in your locality to get full details on the new Hall popular-priced valve refacer, which offers wet-grinding as a built-in feature. . . . We don't have to stress the advantages of wet-grinding, so will quit right here. Number 435 brings you an interesting folder; also catalog of all Hall shop equipment. . . . Just say the word; no obligation.

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436. SIMPLIFIED COST SYSTEM. . . . Here is something that should interest all fleets—large or small. . . . One of the simplest fleet cost systems that we have seen—easy to understand—operated without extra help. . . . A free 10-page booklet contains samples (full size) of the few printed forms needed and tells exactly how you can use them. . . . In other words, this system tells you where every cent goes to—and you don't have to spend five dollars to find out how you spent five cents—if you get what we mean. . . . Number 436 on our post-card brings a free copy of the booklet illustrating and describing the system, without cost or obligation. . . . If you like it, adopt the system; if not, just forget it.

437. WIRING BULLETIN. . . . For trucks, trailers, buses, etc. . . . The most interesting part of this new bulletin is the illustration and description which it contains, of a *brand-new* line of heavy-duty electrical plug-in connectors and junction boxes, for making electrical hook-ups between tractors and trailers. . . . Data is also provided on the proper gauge-size of wires to use with various types of electrical equipment. . . . Wire that's too big is extravagant; wire that's too small wastes current and is inefficient. . . . For your free copy of this new bulletin, which, incidentally also gives some I.C.C. information, place Number 437 on our post-card—and one of Uncle Sam's uniformed messengers (the mail-man) will bring you one promptly.

•

438. GASKET GUIDE. . . . If you use gaskets (and who doesn't) you should have a copy of the new Victor Gasket Guide—a great big volume containing all gasket data for all trucks, buses, tractors, cars, marine and stationary engines, etc., etc. . . . It also contains *other* data pertaining to models and sizes of engines which may be useful in looking up things. . . . A review of this Gasket Guide brings back fond memories of old, faithful engines—maybe some of these are still in service—while others have been relegated to the scrap-heap. . . . Number 438 on our post-card brings a free copy of the Gasket Guide promptly, by mail.

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439. "NO-RIDERS" DECALS. . . . Free samples are offered by a leading maker of decal transfers, consisting of a neat *"No Riders"* inscription, 6" long and 2" high. . . . This transfer is done in red and black, on a gold background and is easily applied by moistening with water. . . . We suggest that you indicate (by placing No. 439 on the post-card) if you would like some. After this number please state the *quantity* desired (one for each windshield). . . . These are *free samples*, which will be sent to you in the interests of safety, neatness and good-will. . . . There's no "catch" to it, other than to acquaint you with the simplicity of using transfers. . . . Please dont ask for more than you can *use*, otherwise it will put the maker in the poor-house and us in the dog-house.

440. FREE SAMPLE. . . . Here is *another* case of a sample being so unusual, that we are tempted to list it here. . . . The new Jenkins tire-valve is offered, in a *free* sample which is an *actual* tire-valve, stem and all. . . . It is cut-away, so that you can see exactly how the plunger seats, how the spring functions, etc. . . . Distribution of these samples is being made as an *educational* project—to show fleet men how the new tire-valve works. . . . Number 440 on the post-card brings your sample in an early mail, with no obligation of any kind.

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441. SUPERCHARGER FOR FORDS. . . . If you are operating Ford cars, taxicabs, trucks or buses, and have a sneaky feeling that you would like to step up the performance by supercharging, etc., you will find this 4-page bulletin of interest. . . . It illustrates and describes a new supercharger that can be easily installed on any V-8, without making any changes, and with which it is claimed you will get better gas mileage, smoother performance, greater power and higher top-speed. . . . Superchargers are not only for racing cars; they can effect remarkable fleet economies, too. . . . For your free copy of this interesting supercharger literature, just mention No. 441 on our post-card. . . . It comes *by mail*, without salesmen.

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442. LUBRICATION SURVEY. . . . A group of engineers has just made an *impartial* survey, which is available, free, to fleet men, in the form of a thick binder, alphabetically arranged. . . . The title is *"Engine Lubrication and Deterioration."* . . . What makes this announcement "news" is the fact that the company offering it has absolutely *nothing* to sell you, believe it or don't. . . . Typical chapters cover such things as sludging, corrosion, water accumulation, crankcase dilution, ring sticking, starting difficulties, abrasive wear, oil-filters, etc. . . . If you have been looking for some *impartial* facts on engine lubrication, this survey will prove to be just what the doctor ordered. . . . Number 442 on our post-card brings a *free* copy, by return mail. . . . We guarantee you will find this interesting and up-to-date.

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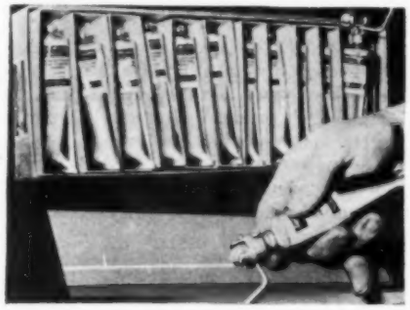
443. CLEANING KINKS. . . . A new booklet that has 36 or more pages of cleaning information. . . . Tells how to clean greasy, mucky parts before repair. . . . How to recondition dirty radiators and clogged cooling-systems. . . . How to remove sludge from motors without tearing down. . . . How to save money on floor-cleaning, steam-cleaning, etc. . . . And how to do dozens of other cleaning jobs. . . . Another book tells practically the same thing in different words and pictures. . . . For these *two* booklets, place Number 443 on our post-card and make a bet on which one will reach you first. . . . They come by *mail*, as do all other items on this page, without obligation.

Striping Gun Given Free

FLEET OPERATORS can obtain, *free*, the striping gun illustrated here, by purchasing an assortment of 12 tubes of Kem Striping & Lettering Enamels. The assortment, complete with the free gun, lists at $6.45.



Kem Striping & Lettering Enamels are of the synthetic type, easy working, covering solidly in a single stroke and yielding a high natural gloss. Drying time is given as 1½ hours out of dust, and hard overnight. No pencil-varnishing is required.

For further details regarding this interesting free offer, address The Sherwin-Williams Company, attention of E. W. Windsor, Cleveland, Ohio. . . . Mention of FLEET OWNER is always appreciated.

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Trouble Shooting Book

WITH increased use of automobile radio, most cars now use or should use voltage regulators, in connection with high output generators. It is the reason the new edition of "*Electrical Trouble Shooting on the Motor Car*" includes an entirely new series of chapters on generator regulation, while diagrams, made in perspective to look like the actual regulator, make it easy for any mechanic, who does not pretend to be an electrician, to trace out the circuits.

The book also has a revised ignition section as well as sections devoted to high-speed ignition, motor tune-up,

motor testers, fuel pumps, gas analyzers, auto radio noise prevention, etc. Includes instructions for building a condenser tester out of radio parts, tells how to judge condenser capacity by appearance of interrupter points and how to determine engine operation by condition of the spark plug insulators.

With this advanced material, the book still includes fundamental instruction on wiring, generators, starters, battery ignition, magnetos, test benches, storage batteries, armature and field testing, synchronizing and locating electrical trouble in the circuits of the car.

Contains four special charts, 576 pages, 58 chapters, over 350 illustrations, questions and answers on practically every chapter and a complete index. Price $4.00. May be obtained from A. H. Packer, 8130 Harper Avenue, Chicago, Ill.

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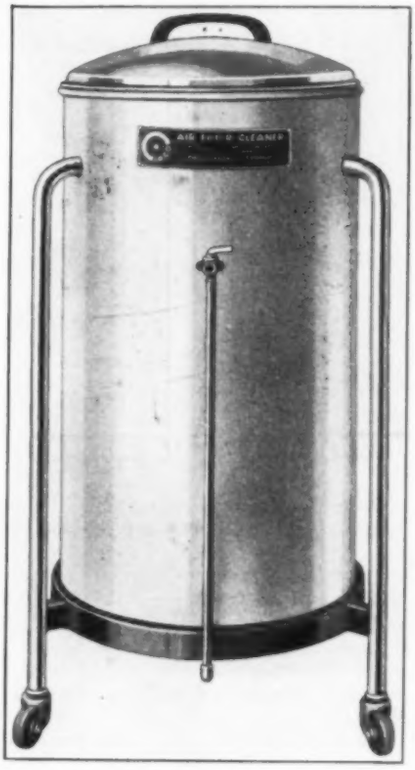
Air-Filter Cleaner

THE CIRCO Air-Filter Cleaner, illustrated here, seems to fill a long-felt want in fleet shops. In a few minutes, it will clean any air-filter



and thoroughly re-oil the element at the same time, when Circo "Air-Solv" is used. However, kerosene or other cleaning solvents may be used.

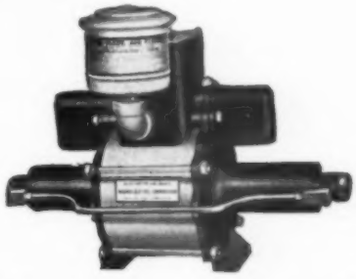
In operation, the air-filter is placed on a standard within the housing, and the cover applied. Compressed air, introduced at the bottom, forces a flood of cleaning solvent up into the copper mesh of the air-filter and out its side—in an opposite direction to the air-stream in normal service. Thus all dirt is removed and settles to the bottom of the housing.

Dirty solvent runs down through an "outside" settling chamber, built within the housing, so that only clarified solvent can be introduced through the air-filter itself. There are no working or moving parts.

For interesting circular which shows exactly how this works address Circo Products Company, 3088 W. 106th St., Cleveland, Ohio. . . . Mention of FLEET OWNER always helps.

New Wagner Air-Brakes

WAGNER ELECTRIC Company announces a new air-brake system for trucks and buses in which a vacuum-operated compressor (illustrated) is used as the source of compressed-air supply.



This air-compressor utilizes engine vacuum to impart reciprocal motion to a large-diameter piston, to which is directly connected a much smaller piston. The latter serves as the air-compressing medium. Through an ingenious series of valves, air is compressed and stored in a suitable tank, where it may thence be led to application valves and brakes.

In the new Wagner air-brake system, which may be installed in the field, if desired, no changes in the braking system are necessary, since "power-cylinders" are used, which may be hooked into existing linkages.

Foot-control, hand-control and emergency break-away valves are available, as well as complete systems for straight trucks, tractor-semi-trailer and full trailer combinations.

The new system is known as "Wagner Auto-Motive-Air" and is illustrated and described in an illustrated pamphlet, together with service and maintenance information. . . . For further details and free copy of this pamphlet, address Wagner Electric Corporation, 6400 Plymouth Ave., St. Louis, Mo. . . . Mention of FLEET OWNER always helps.

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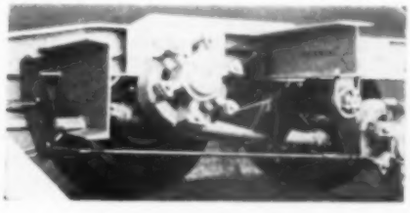
Brake Equalizer

ROGERS BROTHERS, Albion, Pa., announces a new equalizing system of brakes on multi-tired rear units. This new system uses compensating levers which "give" and "take" as the axles oscillate.



Control rods, therefore, are kept constantly in proper tension for instant application and release of the brakes under all conditions, it is claimed. Power is applied with accepted air or vacuum units.

Complete details may be obtained by writing directly to Rogers Brothers, Albion, Pa., mentioning FLEET OWNER, if you don't mind.

"Facts and Figures"

SUMMARIES of 1937's new records in motor vehicle use and ownership in the United States and abroad, appear in the 1938 *"Automobile Facts and Figures,"* statistical annual of the Automobile Manufacturers Association, recently off the press.

The 1938 edition is the twentieth issue of this publication. Among the facts detailed are:

Use of motor vehicles in the United States reached an all-time high in 1937.

Taxes paid by motor vehicle users attained a new peak.

Registrations of cars and trucks in this country and throughout the world, made a new record.

Sales of trucks and buses attained new highs.

Other data in the new edition include: summaries of automobile factory employment; comparison of urban and rural use of roads; diversion of taxes from highway uses; comparison of automobile sales with the national income; analyses of the trend of car prices and the cost of automobile production.

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Bureau of Mines Offers New Survey on Motor Fuels

SERVICE station gasolines in the various price classifications fall into definite groups with regard to octane rating, distillation range, vapor pressure, and other characteristics, according to a gasoline survey report for the winter of 1937-38, recently issued by the Bureau of Mines, U. S. Department of the Interior.

Gasoline survey reports are made semi-annually by the Bureau of Mines to give information as to the quality of gasolines sold generally throughout the United States. This information is desired by automobile designers to enable them to provide the best engines possible to take advantage of the characteristics given to the gasolines by the skill of the refiners.

The reports also supplement surveys made by individual petroleum refiners who need to know the characteristics of gasolines being made by all other refiners so they can manufacture a product within the limits of uniformity required for satisfactory engine operation.

For more than 20 years the Bureau of Mines has reported periodically on analyses of gasolines sold to the general public at service stations throughout the United States. Recently these surveys have been made in cooperation with the Cooperative Fuel Research Committee, which is a joint activity of the Society of Automotive Engineers, the American Petroleum Institute, the Automobile Manufacturers Association, and the National Bureau of Standards.

The paper recently issued in this series, Report of Investigations 3408, Cooperative Fuel Research Motor Gasoline Survey, Winter, 1937-38, Compiled by E. C. Lane, may be obtained without cost from the Bureau of Mines, Information Division, Washington, D. C.

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Oakite Personnel Changes

OAKITE Products, Inc., New York, N. Y., manufacturers of fleet and plant-maintenance cleaning materials, announce the following divisional rearrangement of their Eastern field sales and service organization, effective immediately.

Due to the serious illness of J. A. Maguire, its Detroit division manager, which will incapacitate him for active work for a considerable period, the Company has appointed H. C. Duggan to take charge of sales and service in that division.

Mr. Duggan, after having served previously both as an Oakite sales representative and division manager in the Midwest for eleven years, came

D. X. Clarin H. C. Duggan

to New England as division manager in 1935. His appointment as Detroit division manager, therefore, marks his return to an industrial section with which he is thoroughly familiar and he will now be in charge of the sixteen men who comprise that division. His headquarters will be in the General Motors Building, Detroit, Mich.

As a result of these changes, the Company's New York and New England divisions have been consolidated into one unit, to be known hereafter as the Northeastern division. D. X. Clarin, New York division manager, who has been associated with the Company for the past 19 years, will head the eighteen Oakite sales representatives in the new consolidated division. His headquarters, as heretofore, will be the Company's general offices in New York City.

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Data on Auto Polishing

CARE of the automobile finish is a matter of importance to the average car owner, a survey recently completed by the du Pont Company Chemical Specialties Division indicates.

The gathering of statistics was coincident with a U. S. Census Bureau survey which disclosed that the use of liquid automotive polishes rose from 26 gallons per thousand cars in 1932 to approximately 45 gallons in 1937.

Questioning of more than 3,000 motorists in 49 cities in all parts of the country by an independent research organization resulted in the conclusion that 75 per cent of all cars are waxed or polished at least once every 6 months, and that 66 per cent are polished by the owner himself or a member of his family. Cars are polished the year around, not just in spring and summer, it was learned.

Other facts elicited were that 84 per cent of those who polish their own cars bought the polish or wax themselves and that 80 per cent specified a brand name.

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Tool Reference Manual

COMPLETE specifications on bits for driving slotted-head and Phillips recess-head screws and on socket-wrench shanks and socket-wrenches for all types of bolts and nuts, are presented in a new catalog and reference manual recently issued by the Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago, Illinois.

This attractive new 24-page book, known as Catalog No. 70, describes bits and shanks for use with all models of Thor and other makes of power screw-drivers and nut-setters.

Fully illustrated with application pictures of tools in use on various kinds of jobs and with detail drawings of the bits, shanks and socket-wrenches, this manual gives the experienced executive all the information he wants in convenient, concise form. A copy is available to users of power screw-drivers and nut-setters on request. . . . Address the company mentioned above; and if you tell them you saw this in FLEET OWNER, we'll appreciate it.

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New Bendix Joints

(*Continued from page* 42)

the control wheel in a modern air liner, racing car, speed boat, or in the pleasure cars of today. Here the wheels are usually located to afford a maximum of visibility, ease, comfort, and efficiency.

Take for example the moving van—often the width of the van is eight feet. The driver may be seated two-and-a-half feet in from the left side. This is too far in to allow efficient control. If the operator attempts to peer from the left window, in an effort to back into a space, for instance, he is unable to properly control the vehicle while doing so.

For further details regarding Bendix-Weiss universal joints, address Bendix Products Corporation, South Bend, Ind. . . . Mention of FLEET OWNER is always appreciated.

Tank-Truck Fleet Story

(*Continued from page* 15)

from the outside of tank; also 3" external valves mounted below the internal valves.

Fuel tanks for truck use are built in the top of truck tanks at the head. This allows for gravity feed to the motor and eliminates the need for fuel pumps, plus the hazard of requiring a number of small tanks at the lower sides of the truck.

Our trucks and trailers, as you will observe from the pictures, are of our own design and are completely manufactured in our own shops. Our motors are 235-horsepower Hall-Scott engines which have been designed at the factory to meet our specifications. The result is very satisfactory gas mileage and low maintenance cost.

Our equipment, of course, has been designed to conform to the weight requirements of the States in which we operate. Washington and Idaho permit loads of 68,000 pounds gross, maximum axle weight 13,000 pounds; while Oregon has a load limit of 54,000 pounds gross with a maximum axle weight of 17,000 pounds.

The tank capacities mentioned above are for Oregon operation. In Washington each of our trailer tanks has a capacity of 3,550 gallons, and truck tanks 2,450 gallons.

Our maintenance operation is very positive and methodical in procedure. It is based on mileage and covers the following checkups, inspections and motor work:

(a) All equipment is lubricated thoroughly every 1,000 miles, with complete shop inspection. Any defects found or repairs required are made immediately and correctly. No patching-up or temporary methods are used. The equipment must be right before it leaves the shop.

(b) Every 500 miles the following are inspected: Brake clearance, distributor points, tires, fuel screens and general chassis check-up.

(c) All equipment is run under the showers and thoroughly washed after each trip. This allows the trucks to leave the yard in a clean and attractive condition, always showing a good paint job and representing the best highway advertising money could buy. Each vehicle is a constantly rolling bill-board that really attracts attention. All equipment is painted red, with the butts of tanks and wheels painted in gold color.

(d) Every 3,000 miles all equipment is given a general inspection and check-up for valve clearances, generator and regulator output; carburetors are checked for fuel consumption; air equipment, including compressors and air governors, are checked for output.

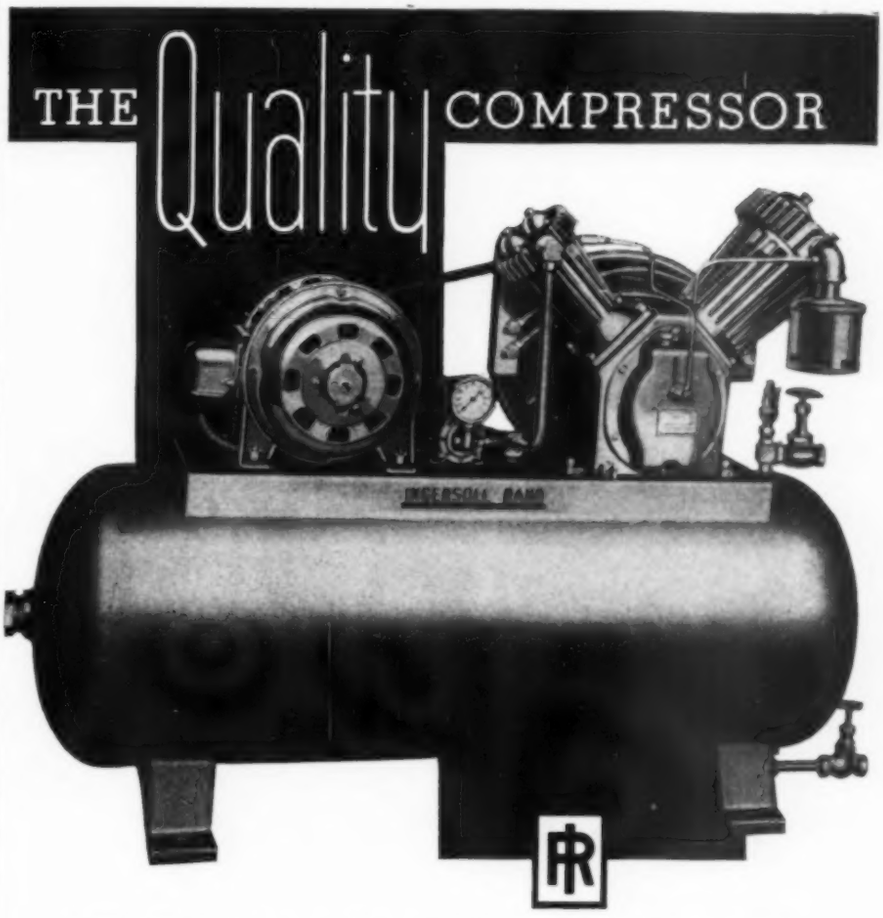
(e) Every 50,000 miles all motors are given a valve-grind and new rings; bearings are checked for clearances; wheels pulled and repacked; wheel bearings checked for loose races and broken rollers. The complete unit is then thoroughly steam cleaned and painted. This, of course, includes painting of tanks.

(f) Every 200,000 miles all motor blocks are completely reconditioned with new pistons.

(g) Every 300,000 miles all crankshafts are ground and new bearings installed and line-bored.

There is another department in motor transport operation equally as important as proper construction and maintenance of equipment, and that is the problem of drivers. All our drivers must qualify and are chosen only after considerable care, close investigation and physical examination. This is the first requisite to secure the right kind of men. They are then thoroughly schooled in our methods and practices of operation.

Next they are assigned a copy of Arrow Transportation Company Rules and Regulations. This is a book of instructions prepared by our company governing all phases of truck operation on the highway, including care of the equipment, speed of travel, courtesy rules in dealing with the public, procedure in case of accidents (whether it involves our equipment or not), tire check for proper inflation, light inspection, and many other matters. Our drivers are required to thoroughly understand these rules and



● The Type 30 is a quality compressor, and it looks the part.

Such features as continuous service rating at 200 pounds, no check valve in the discharge line, enclosed centrifugal unloader, and advanced 2-stage construction insure long trouble-free service at the lowest possible cost for power.

Ask your jobber about them or write our nearest branch office.

Ingersoll-Rand

11 BROADWAY, NEW YORK, N. Y.

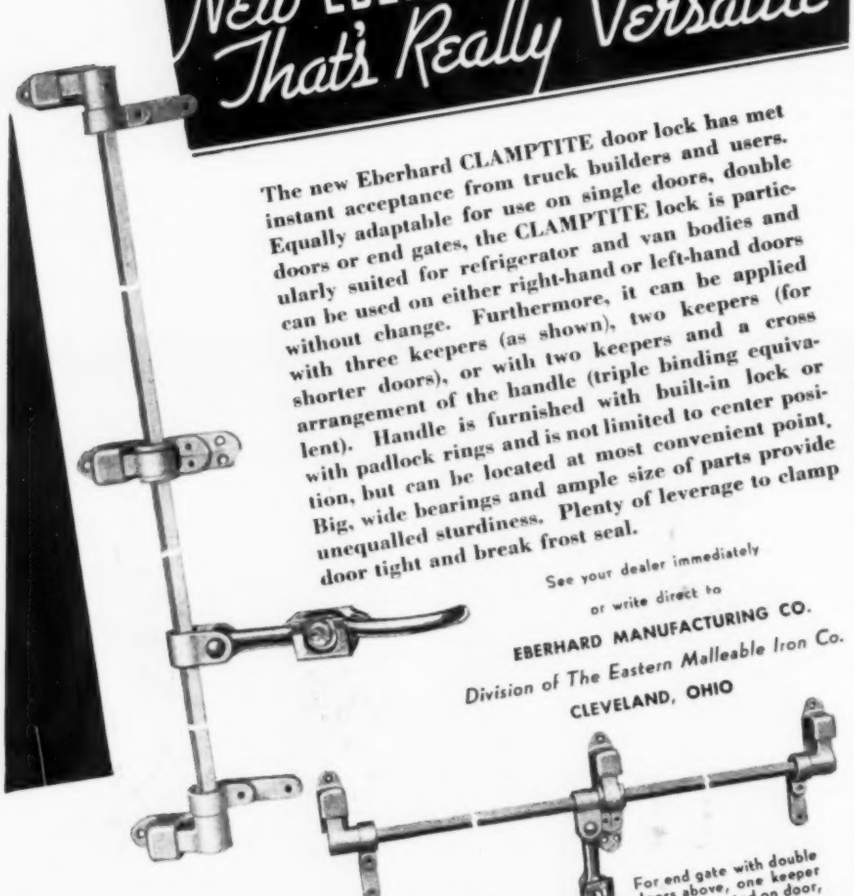
Atlanta, Birmingham, Boston, Buffalo, Butte, Chicago, Cleveland, Dallas, Denver, Detroit, Duluth, El Paso, Hartford, Houston, Kansas City, Knoxville, Los Angeles, Newark, New York, Philadelphia, Picher, Pittsburgh, Pottsville, Salt Lake City, San Francisco, Scranton, Seattle, St. Louis, Tulsa, Washington

Here's a New EBERHARD Door Lock That's Really Versatile

The new Eberhard CLAMPTITE door lock has met instant acceptance from truck builders and users. Equally adaptable for use on single doors, double doors or end gates, the CLAMPTITE lock is particularly suited for refrigerator and van bodies and can be used on either right-hand or left-hand doors without change. Furthermore, it can be applied with three keepers (as shown), two keepers (for shorter doors), or with two keepers and a cross arrangement of the handle (triple binding equivalent). Handle is furnished with built-in lock or with padlock rings and is not limited to center position, but can be located at most convenient point. Big, wide bearings and ample size of parts provide unequalled sturdiness. Plenty of leverage to clamp door tight and break frost seal.

See your dealer immediately or write direct to

EBERHARD MANUFACTURING CO.
Division of The Eastern Malleable Iron Co.
CLEVELAND, OHIO



The illustration at the left shows the CLAMPTITE as applied to single or double doors with built-in lock handle and three lugs, bearings and keepers. Note position of handle for most convenient operation. For shorter doors middle lug, bearing and keeper are simply omitted.

For end gate with double doors above, one keeper may be mounted on door, as shown. Note center position of padlock handle for best appearance.

EBERHARD Clamptite
UNIVERSAL DOOR & GATE LOCK
Ask for Bulletin NO. 130

regulations and know how to practice them.

We have a driver-foreman who devotes his entire time to training drivers, and riding with all of them periodically as a means of constantly improving their driving efficiency. This foreman spends several weeks with a new or student driver before he is allowed to take any equipment out alone.

Now, to say that our driver-foreman devotes his entire time to training drivers, does not mean that we are always changing drivers; on the contrary, our driver-personnel turnover is almost negligible. We hardly know what it means to have a driver leave us or to discharge one. Of course, that comes from our care in employing them. They are under the immediate direction of the dispatchers and driver-foreman. Our drivers are paid a very good wage; they are treated right and are satisfied with their work and the high standard of equipment they operate. They all belong to the union.

Our method of operation includes division points where drivers are changed, allowing the equipment to continue on through to their destination and return promptly, as wasted time of equipment is expensive.

In conclusion I would like to say that our Company is deeply interested in safety. We believe, as most fleet men do, that the motor transport industry, through its vast experience, should have a definite voice in any safety regulations adopted for the industry by federal or state regulatory bodies. We wish to compliment the Interstate Commerce Commission and state bodies for the constructive work they have carried on since the advent of the Motor Carrier Act of 1935.

(EDITOR'S NOTE: This article is published through the courtesy of *"The Petroleum Transporter"*, official organ of The United Transporters of Petroleum Products, Lincoln, Nebr.)

●

Wiring Hints

(*Continued from page* 18)

ferent gauges, based on 10-foot lengths or less. For each 10-foot additional length of cable, the carrying capacity will be reduced to that of the next smaller size of cable:

18-gauge will carry 3 amperes
16-gauge will carry 6 amperes
14-gauge will carry 15 amperes
12-gauge will carry 20 amperes
10-gauge will carry 25 amperes

Battery Cables: While the *outside* diameter of all gauges of battery cable is approximately the same, the diameter of the copper core varies in size, as shown in the accompanying illustration, Figure 2. Naturally, the larger the copper core, the greater the current-carrying capacity of the cable.

A Number 1-gauge cable has 100% more starting capacity than a Number 4-gauge, 59% more than a Number 3 gauge, and 26% more than Number 2 gauge. Cables that are too small will choke the starter, starve the spark coil and cause hard starting. Heavy-gauge cables should always be used for the most satisfactory performance.

The following table of typical current-draw for various lights and accessories should be found somewhat helpful:

Equipment	*Amps. Used*
Starting Motor	375 to 400
Cigar Lighter	15
Headlights (only)	9½
Defroster	8
Radio	7½
Spot-Light	4¾
Heater Motor	2½
Ignition (only)	1½
Electric clock	¼

The amperages given above are *general*, and may vary with different types of equipment, different makes, etc. It is interesting to note in the above table that a cigar-lighter requires twice as much current as a radio. . . . The amperages given for starting motor and cigar lighter are for very brief operation only.

Whenever you get driver-complaints

of hard-starting, dim lights, weak horns, and other electrical dissatisfaction, it will pay you to make a thorough check of all wiring, using a good volt-meter. In an early issue of this publication we are planning to present a *thorough* article on this subject, outlining the procedure in simple, step-by-step fashion. Watch for it!

•

Coca-Cola C.O.E. Jobs

(*Continued from page* 23)

crease availability of the product. The Coca-Cola Company shows in one of its numerous educational films, with respect to placing the product in the homes, that members of the average family of five persons have a combined total of 76 waking hours daily, 38 of which are spent at home.

To the average individual, Coca-Cola is available almost everywhere away from home, and its introduction into the home thus makes it available throughout the family's waking hours.

On the other hand, the coin-controlled machine, which is in essence an electrically-operated concession, increases the availability of the product by the length of the working day.

Industrial consumption, introduced by coin-controlled, electric coolers in January, 1937, is exceeding all expectations and is reported to be just in its beginning.

There, then, is a brief outline of what might easily be made a much longer product success story, a story which includes today's most powerful selling forces at work; namely, a product with universal appeal, and a quick turnover, resulting from scientifically correct advertising and personnel merchandising program kept constantly on schedule by safe, efficient, and low-cost truck transportation.

•

What Fuels for Today's Cars?

(*Continued from page* 29)

the top of the stroke, the same charge is compressed into a space represented by one pint. By the same formula, if the charge of fuel mixture is compressed into one-seventh of the original space, the engine has a compression ratio of 7 to 1.

Engines of two extremes are utilized in the clinics to indicate the relationship between fuel and high compression. The high compression engine of today is typified by a special racing engine with a compression ratio of 9 to 1 and a maximum of 200 horsepower, while an old Model T Ford of twenty-five horsepower serves as an example of the low compression engine. To equal the output of the racing special, the size and weight of the old low compression Ford would have to be increased eight times, it is pointed out.

An old style motor of 100 horsepower, considered the ultimate in engine design twenty-five years ago, was built on the low compression theory with a compression ratio of 3½ to 1 and weighed 2,000 pounds. The average modern motor which develops the same horsepower on a 6 to 1 compression ratio weighs only 800 pounds, the clinic studies show. If the motor of the Model T Ford were increased by size alone to give 150 horsepower, "the car would be motor from bumper to bumper", according to the engineers.

The aviation industry was the first to take advantage of the higher octane fuel. Progress in the air, it is said, may be measured by comparing the tri-motored plane of yesterday with the more efficient two-motored plane of today. Actually an engine and its weight was removed from the nose of the ship and converted into payload, where it belonged. Dispensing with one engine is possible only by the use of the high compression motor which gives more power and a greater degree of safety than the tri-motored plane.

SCUFFING
DISCUSSED BY
PROMINENT ENGINEERS

"A lot of damage to rings and bores occurs during the breaking-in period and during periods of high speeds and loads."

"One . . . was scuffing of piston ring faces in new engines particularly when started after becoming cold. In aggravated cases, this scuffing appeared on both pistons and rings."

". . . It was learned that oil, which according to the pictures in the catalogue was supposed to squirt on the cylinder wall, was doing no such thing for quite a period of time. It merely oozed out of the end of the hole, in the meantime gasoline was being supplied in liquid form to the top of the piston by choking, where more than ten sec. was consumed in cranking, the rings were washed clean of oil, so that, when the engine started and speeded, scuffing should have been expected. A lubrication change was devised which carried oil directly to the piston through the cylinder walls under pressure from the gallery line, so that, immediately when pressure was present in this line, oil started to flow to the piston surfaces. This change helped tremendously but, under the rather strenuous conditions of testing used, it did not cure."

Our Answer

"A sample of running-in compound containing Acheson's colloidal graphite – 'dag' Brand – was submitted on April 4th, 1935, for test purposes with respect to its effect on cylinder and piston ring wear in a new engine during the running - in period. Comparative tests were carried out on a plain oil and on oils containing proportions of running-in compound recommended by E. G. Acheson, Ltd. An unused cylinder barrel and an unused piston ring were used in testing each lubricant and the test procedure involved repeated starts from cold, so that a certain amount of cylinder corrosion probably occurred. The results show that during the running-in period the wear with oil containing colloidal graphite was approximately half that observed with plain oil."

For and on behalf of
The R. and S. Committee of the I. A. E.
(Signed) C. G. WILLIAMS,
Director of Research.

ACHESON COLLOIDS CORPORATION
PORT HURON, MICHIGAN

dag
COLLOIDAL PRODUCTS

ACHESON COLLOIDS CORP., PORT HURON, MICH.

Please send gratis, story on "dag" Colloidal Graphite and copy of "cigarette paper" test.

NAME .....

ADDRESS .....

NO ARGUMENTS IN *This Room*

The facts are on the chart

No Misunderstandings or Disputes are Possible Now!

● How do you manage *your* trucks? The Easiest Way is also the most effective: *"Let the trucks speak for themselves."* Let each truck "write" its own story of the day's work; and then hang the story (the chart) on a peg on the wall, up where everybody can see it.

These charts came out of *Servis Recorders*—they show just when each truck was running, when it left the garage, how long it waited for the load, how long it stood idle, when it quit—in fact the whole story of the day's work.

That information assures a trucking system where nobody argues, where nobody is suspicious of anybody else, where everyone is treated fairly and everyone is treated alike. It pays. Send for booklet—*"Ten Ways of Getting More Work Out of Motor Trucks."*

THE SERVICE RECORDER COMPANY
1422 Euclid Avenue • Cleveland, Ohio
Branches in Principal Cities

The Servis Recorder
Tells Every Move Your Truck Makes

"Gentlemen of the Road"

(*Continued from page* 16)

tinued Mr. Hoffman, "are the greatest factors towards eliminating the dangerous driver." He further proposed that every owner and operator of trucks, whether individual or of a fleet, unite in a campaign to induce *all* commercial drivers to become members of a safety organization.

Guest-speaker Sergeant Paul Beverforden of the Indiana State Police, told the men to count the number of cars they pass coming and going on a fifty-mile stretch of highway, to get an idea of the number of people one driver contacts in a comparatively short period of time. He felt it would best illustrate how a large number of people can be exposed to possible danger of accident, should the driver allow himself to become reckless in his driving. Then, by multiplying this one example by the thousands of trucks now on the road would give some idea of the great need for careful driving.

The Sergeant also used this example to emphasize the fact that a driver should always consider that the "other fellow" has the right-of-way. Acting upon this supposition makes the man behind the wheel alert at all times. He will just naturally have his truck under complete control for emergency stops, even though the green lights are with him and his road is a "through" highway.

His talk was finished with the suggestion that good equipment, well maintained, is an important factor to safe driving, and that the State Police are doing everything in their power to cooperate with commercial haulers in promoting safety on the highway.

The illustration at the head of this article shows Mr. Hoffman awarding Edward G. Braniff, commercial driver in the employ of the Standard Oil Company, South Bend, Indiana, for over 25 years, a certificate of merit for never having an accident or scratching a fender in over 500,000 miles of commercial car driving. Mr. Braniff began his career in 1913 by driving a 1913 2-ton truck as the first gasoline-powered commercial vehicle to be operated in the State of Indiana by his company.

●

ICC Sets Drivers' Hours

(*Continued from page* 30)

or operating, and 4 hours other duty, a total of 24 hours.

There is little reason for our republishing the elaborate set of rules and regulations to be followed under this latest I.C.C. ruling. Besides, space will not permit it. We have simply included an explanation of the "Driver's Log," thinking that it might interest other fleet operators, who may be interested in keeping similar records of drivers' work, for their own information. There is no reason why you cannot use this form, or an adaptation of it, if you so desire. Those fleets coming under the jurisdiction of the I.C.C. *must* use it, however.

●

GMC Offers Retail-Delivery

(*Continued from page* 34)

temperature indicator. Also included are light switch, ignition switch with key lock, carburetor choke and throttle controls. Foot throttle is on toe-board.

Electrical equipment includes horn, depressed-beam headlamps, with nonglare lenses and foot switch control, combination stop and tail lamp, dash lamp, 6-volt battery, front and rear license brackets, chrome spring-type front and rear bumpers, front and rear fenders, aluminum-finished radiator grille bars. Included at extra cost are spare tire carrier, spare wheel, deluxe hub covers and shock absorbers.

A three-speed selective, syncro-mesh transmission is provided, mounted in unit with the engine. Gear shift is by remote-control (mechanical), with lever mounted on steering column.

As before stated, the wheelbase is 112 inches and the length of the loading or floor space is 108 inches. Maxi-

mum interior dimensions of load space (except wheel housings) are 108 inches x 68½ inches x 66 inches high. Overall length (over bumpers) is 201½ inches. Overall width (over fenders) is 75 inches.

The following general features are listed by GMC factory engineers: A complete factory-built job—not a conversion; cab-over-engine design, giving full vision to the driver; all-steel insulated top; unobstructed driver's compartment with gear-shift on the steering-post; low floor height—approximately 2½ feet above pavement level; sound-proofing of body to eliminate rumble and noise; special long-life starter, designed for frequent operation; special engine features for maximum economy in severe stop-and-go operations; special generator with maximum charging rate for slow-speed operation; GMC patented seal rubber glass mountings; driver's seat attached to steel tool-box by means of hinges and special locking device; seat back hinged to facilitate easy entry and exit from load compartment.

For interesting literature that completely illustrates and describes this new model; also specification sheet and prices, address General Motors Truck Division, attention of F. S. Vorn, Pontiac, Mich. . . . You'll mention this announcement in FLEET OWNER when writing, won't you?

•

New Covic Diesel

(*Continued from page* 38)

remove the entire camshaft and valve-motion cover-plate, cylinder head cover-plates and cylinder heads. Less than a half day is required for renewal of cylinder liners, pistons and rings, according to the manufacturer.

The Northill Company has acquired exclusive, national manufacturing and sales rights for the Covic Diesel engine. John K. Northrop, eminent aeronautical engineer and executive, former president of the Northrup Corporation and vice-president of the Douglas Aircraft Co., Inc., and now vice-president and executive engineer of The Northill Company, says:

"After an exhaustive study of world-wide developments in Diesel engines, we are convinced that the Covic Diesel sets new standards for efficiency and economy.

"Our initial immediate production program involves more than a milion dollars' worth of these engines for the automotive, marine and industrial markets—which have been waiting many years for a compact, light-weight Diesel engine. Mass production is contemplated within a short time, based on the tremendously growing demand for this type of engine.

"The Covic Diesels bring the universally-recognized economies of heavy oil engine power to an outstanding point of practical application. They are light-weight, practically vibrationless and operate entirely free from smoke. Throughout Europe these engines are giving spectacular service. Several thousand are in use in the British navy, others in delivery truck fleets where mileages of 65 to 70 miles per gallon of cheap fuel-oil are obtained. They are also used in fishing and other marine craft, oil-pumping plants, construction equipment and electrical generating plants. They are now manufactured extensively in England, Holland, Switzerland and France.

"The light weight and small size of the Covic Diesel, heretofore unknown in this power class, make possible thousands of new applications of efficient Diesel power in this country."

It is said that the Covic Diesel has the same relation of weight to power as present gasoline truck engines. The weight of the basic Covic engine is only 280 pounds, including flywheel. This is the result of patented principles and design, plus the use of specially developed metal alloys.

The Northill Company, through its sales director Ed Zuchelli, announces that a national organization of distributors and dealers, to serve all power-using industries, will be established immediately. Distribution has already been arranged for the Pacific Coast territory, through the Covic Diesel Pacific Company. This firm is

for 3 FINAL DRIVES

• When the truck you buy has a Timken 3 for 1 Axle, you have a **complete range** of gear ratios to choose from. And you'll get a truck that **fits your job**—WITHOUT COMPROMISE OR DELAY. For the 3 for 1 Axle takes any one of THREE final drives—Bevel Gear, Double Reduction or 2-Speed Double Reduction. It pays to buy trucks that are equipped with Timken 3 for 1 Axles.

TIMKEN 3 for 1 AXLES

The Timken-Detroit Axle Co., Detroit, Mich.

WISCONSIN AXLE DIVISION, OSHKOSH, WIS.

. . a COMPLETE Motor Overhaul Job without one cent of expense to you.

Save the equivalent of a complete motor overhaul for each truck you operate by using MAGNUSOL, the perfect COLD tank cleaning solvent.

MAGNUSOL saves heating expense and time because it is used COLD—always ready for use. It takes the "cling" out of grease and oil. For quick, thorough cleaning of small parts, exterior surfaces, undergear, interiors, cement floors, etc.,—MAGNUSOL'S savings over ordinary cleaners will effect economies that will add $100 or more to the operating profit of each truck you own.

FREE

48-page AUTOMOTIVE CLEANING HANDBOOK. Goes thoroughly into all cleaning problems connected with truck operation and maintenance. Send today on your business letterhead for your copy.

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

36 South Avenue Garwood, N. J.

MAGNUS CLEANERS

headed by James Garvey, prominent in the Diesel engine business for the last 25 years. Initial commitments of Pacific Coast dealers represent more than half a million dollars.

Production of this new Diesel is already started in the plant of Menasco Manufacturing Company, to which the Northill Company has awarded an initial contract for one thousand engines. The Menasco plant was chosen because of the company's enviable record for craftsmanship in the manufacture of aircraft engines, and its proven ability to produce precision products.

For complete specifications, installation data, prices and name of your nearest distributor, address John K. Northrup, c/o The Northill Company, Los Angeles, Calif. . . . Mention of FLEET OWNER is always appreciated.

●

Innards Interchangeable

(*Continued from page* 36)

"A dump truck equipped with Bevel-Gear Drive or 2-Speed Double-Reduction Drive, having speed and fuel economy in a summer road building program, can be successfully used for snow-removal in the winter time by simply replacing the high speed type of drive with a slower speed, heavy-duty Double-Reduction Drive carrier.

"The same procedure can be followed by seasonal contract haulers and interstate trucking companies operating medium and high priced equipment. The saving in gasoline, oil, engine wear and maintenance costs made possible by the use of the correct rear axle gear ratio, makes this substitution of carriers economically practical, even for only a few months of intensive operation," Mr. Rockwell continued.

The new Timken 3-for-1 axle is available in three sizes for trucks from 1½ to 4-tons capacity. The housing or load-carrying member is of the square type, all-steel, pressed from unusually heavy stock. The upset forged wheel ends are butt-welded to the housing proper with the weld guaranteed for life. This construction, having uniform wall thickness throughout, provides maximum rigidity with minimum weight.

The all-purpose feature of this new 3-for-1 axle is carried one step further by a three-way choice of brakes available with these housings—Medium Duty 2-Shoe Hydraulic Brakes—Medium Duty 2-Shoe Timken Brakes with Constant Lift Cam, adjustable levers and air brake chambers mounted on the axle—or Heavy Duty 2-Shoe Timken Brakes with "S" type Constant Lift Cam, heavy brake liners, Westinghouse slack adjusters, and air brake chambers mounted on the axle.

The axle shafts are of the latest Timken "Torsion Flow" design, with the body and spline in balanced proportion, in order to eliminate the localized accumulation of strains. Sixteen shallow slanted splines with reinforced runouts provide, where it is most needed, the extra strength to withstand the twist of sudden shock loads.

The following table shows the gear ratios available in Timken 3-for-1 axles with Bevel Gear Drive, 2-speed Double-Reduction Drive, and Double-Reduction Drive:

RATING	BEVEL-GEAR	DOUBLE-REDUCTION	2-SPEED
	No. 53300	No. 73400	No. 93300
Light	5.14-1 5.67-1 6.60-1	7.35-1	5.27-1 & 7.06-1 5.64-1 & 8.16-1
	No. 54410	No. 74410	No. 94410
Light-Medium	6.17-1 6.80-1	7.35-1	5.57-1 & 7.62-1 6.10-1 & 8.34-1
	No. 56410	No. 76410	No. 96410
Medium	6.17-1 6.83-1 7.40-1	7.35-1 8.21-1	6.19-1 & 8.18-1

The Bevel-Gear Drive meets a majority of all motor truck requirements, for hard surfaced roads, such as city delivery, fast cross-country hauling, buses, etc.

The Double-Reduction Drive is designed for heavy-duty work where slow speed ratios and maximum tractive effort are required. The name "double-reduction" is derived from the fact that the desired axle gear reduction is obtained from two sets of gears, a bevel gear and pinion set, and a helical gear and pinion set.

The 2-Speed Double-Reduction Drive is designed for hauling where speed, pulling power and fuel economy must all be combined in one and the same vehicle. This is accomplished by the addition to the conventional double-reduction drive of a second set of helical spur gears and a sliding clutch collar, which enables the driver to select either one of the two rear axle gear ratios.

From the accompanying table it is obvious that the 2-Speed Double-Reduction Drive gear ratio range overlaps the fast Bevel-Gear drive range and the slow Double-Reduction Drive range. Combined, these three ratio ranges offer the fleet operator five or six different ratios in each of the three different capacity groups of Timken 3-for-1 Axles.

The possibility of future legislation establishing minimum speed laws for motor trucks on hills makes the flexibility offered by this new axle of particular interest to fleet operators. The "3-for-1" axle will permit the necessary "juggling" of gear ratios to meet whatever requirements may be prescribed, Timken engineers anticipate.

For your complete set of literature illustrating, describing and pricing these new axle assemblies, address The Timken Detroit Axle Company, 100 Clark Ave., Detroit, Mich. . . . We always appreciate it when you mention FLEET OWNER. . . . Sometimes it speeds up the service.

Walker Gas-Electric

(*Continued from page* 40)

the gas throttle." As the engine increases its speed and torque, the dynamo, being directly connected to it, furnishes an uninterrupted flow of power to the drive motor which in turn drives the gearing within the wheel hubs.

When the engine is idling, no current is developed by the dynamo as this unit must be excited by external means. The opening of the gas throttle operates a relay that connects the starting and lighting battery to the field circuit of the dynamo for this purpose. When the dynamo has built up its voltage to a pre-determined value, the relay closes, disconnecting the battery, as the dynamo is then self-exciting. The current required for this purpose is negligible, approximately three amperes being required for about two seconds for each acceleration; thus, one ampere-hour is drawn from the starting and lighting battery for each 500 to 600 accelerations. The directional switch between the dynamo and driving motor has three positions; forward, neutral and reverse.

The engine, with its usual accessories, is of the conventional design. The dynamo and driving motor require only such attention and care as the battery, generator and engine starting motor. The relay, excitor switch, resistor, governor and directional switch are simple electrical units, which require only a minimum of attention, it is claimed. The chassis weight of 3100 lbs. and total truck weight of 4450 lbs., are given.

The governor is of the solenoid type operating a valve interposed between the carburetor and the intake manifold and operated by the voltage of the dynamo. The valve is wide open until a pre-determined voltage has been reached, when it is closed by the functioning of the solenoid. This action is automatic and beyond control of the driver. One of the characteristics of the dynamo is the dropping of the voltage curve under heavy loads. When the load on the dynamo is sufficient to prevent the engine from building up the dynamo voltage to the point required for governor operation, the governor does not function and the engine is free to develop its maximum horsepower as long as this condition exists. In this manner acceleration is greatly increased and it is claimed that the engine can be operated within its broadest and most efficient range, without restriction of r.p.m. or horsepower development.

Because there is no clutch pedal and no gears to shift, driver fatigue is said to be practically non-existent, when this type of vehicle is used. Claims are also made for remarkable fuel economy, as proven in test runs and actual delivery work.

The body of the Model 500 Dynamotive truck, illustrated on the first page of this description, is designed for house-to-house service. It is 59½ inches wide, without wheel-housings, allowing an aisle and loading space back of the aisle, free from obstructions. Turning radius is 17 feet.

Flanged steel plates form the floor of the load compartment and aisle. To these are welded seamless-steel rectangular tubes, forming the frame of the body. The roof frame is a pressed-steel angle having a deep vertical leg, and is bolted in the body frame. Roof ribs are of oak, covered with plywood and canvas.

Literature is now ready that completely illustrates and describes the new Walker Dynamotive units. For your free copy, also prices, etc., address Walker Vehicle Company, attention of George Walton, 101 W. 87th St., Chicago, Ill. . . . Mention of FLEET OWNER always helps and sometimes it speeds up the service.

•

New Goodrich Appointment

GEORGE M. MADOLE has been named assistant to the general sales manager of the original equipment tire division of The B. F. Goodrich Company, Akron, Ohio. . . . He formerly was assistant managing director of Goodrich, at Colombes, France.

Made for each other

MIDLAND POWER BRAKE KITS

are engineered expressly for

FORD • CHEVROLET • DODGE

G.M.C. and INTERNATIONAL

★

LOOK AT THESE MIDLAND FEATURES

Quickly and easily installed
Interchangeable in fleet operation
Simple in design . . . rugged in construction
Fully complies with all city and state laws
Factory rebuilt exchange plan
Nation-wide Midland service organization

IT COSTS NO MORE—and generally less—to equip your fleet with engineered Midland Power Brakes. Then you *know* that each part has been made for each other, and that each kit has been made to fit *your* truck or tractor.

Don't take a chance with misfit power brakes. Specify Midland, the choice of prominent fleet operators and chosen as *standard equipment* by leading manufacturers. Phone your nearest Midland distributor today for complete information or write us direct.

THE MIDLAND STEEL PRODUCTS CO.
10605 Madison Avenue • Cleveland, Ohio

MIDLAND POWER BRAKE EQUIPMENT

MIDLAND (CHRISTENSEN) Power Brakes

BETTER LIGHTS
FOR LONGER NIGHTS

K-D has the call for Fall when longer hours of night driving make more lights and *better* lights imperative. K-D products are backed by K-D Quality which is kept up to such lofty standards that they exceed S.A.E.—I.E.S. specifications and pass every test with a big plus margin.

K-D SHO-TURN
Direction Turn Signal
MODEL NO. 565-A
6 types in combinations for every purpose.

Write for the handsome
K-D CATALOG NO. 38
—it's a cyclopedia of the best lamps ever made—just off-the-press illustrated "from life."

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More UPS Drivers Get Safety Awards

POLICE COMMISSIONER LEWIS VALENTINE of New York City presented company awards of $50.00 each to eight United Parcel Service drivers who have driven company trucks for eight years through city traffic without a single accident.

In a presentation ceremony held at Police Headquarters recently, Commissioner Valentine said that New York City's comparatively low automobile fatality record has been made possible in part by the cooperation of owners and drivers of large fleets like the United Parcel Service.

During the eight men's employment with United Parcel Service, they have driven an average of 130,000 miles each, while one man has driven a company truck more than 280,000 miles. Each man has a long safety record, ranging from fifteen to twenty-eight years of driving without accidents of any kind.

According to James E. Casey, president of United Parcel Service, the company has cut its New York City accident rate in half in less than three years. This, he felt, is due largely to the company's cooperation with the Police Department's safety movement, its continuous program of safety education for drivers, and its system of awards.

More than 300 of the 450 company drivers have perfect safety records of from 2 to 8 years; more than 75 drivers have driven five successive years or more without a chargeable accident. Graduated awards are made after the second year to drivers who complete a year without a "chargeable accident". In addition, cash awards are made to groups, each city "station" group getting $50.00 for every 800 individual driving days without accident. In recent years, the company's drivers have won many national and local safety contests.

An "accident", by the company's definition, is "any contact between a United Parcel Service car and any person or object". A "chargeable accident", under the company's safe-driving regulations, ordinarily is any involving a pedestrian, any at an intersection, any while two cars are in motion, any occurring while backing, and any resulting in damage to the car ahead. The only absolutely "unavoidable accident" recognized is one happening while the truck is legally parked or stopped at a light.

•

Auto Tax Bill Shows 94% Gain Over 1926

SPECIAL additional automotive taxes now cost the average motor taxpayer 93.4 per cent more than in the statistically-normal year of 1926, it is estimated by the American Petroleum Industries Committee from reports of the U. S. Bureau of Public Roads.

In 1926 the average annual automotive tax bill per vehicle was only $26.01, according to the Committee. In 1937 the cost was $50.31 per vehicle.

Increases in costs to the average operator since 1926 have been enormous in some states, it was found. Among the larger increases were 203 per cent in Illinois, 178 per cent in New York, 140 per cent in Alabama, 137 per cent in Texas, 133 per cent in Louisiana, and 127 per cent in Arizona.

Other states in which increases in tax costs exceeded 100 per cent since 1926 are: Colorado, Delaware, Indiana, Mississippi, Montana, New Jersey, New Hampshire, Ohio, and Tennessee. Increases of more than 90 per cent were recorded in California, Idaho, Massachusetts, Pennsylvania, and Wyoming.

Oil Company Drivers Are 65 Per Cent Safer

OPERATORS of motor vehicles owned by oil companies had 65 per cent fewer accidents last year, per mile traveled, than did the average operators of commercial vehicles, the department of accident-prevention of the American Petroleum Institute reports.

The motor vehicle accident-record of the industry during 1937 reveals 10.5 per cent fewer accidents than in the preceding year and represents the best achievement of the past five years.

This decline in motor accidents was accomplished despite the nation-wide increase in automotive accidents reported during the same year by the National Safety Council.

●

To Hold World Automotive Congress in 1939

ENGINEERS, manufacturing executives, and transportation experts from every large country of the world plan to attend the 1939 World Automotive Engineering Congress of the Society of Automotive Engineers, May 22 to June 8, 1939, John A. C. Warner, secretary and general manager of the Society announced recently.

Tentative plans include five days of technical sessions and a banquet soon after the New York World's Fair opens, and arrangements will be made for members of the Society and their guests to attend the big New York event. Grover Whalen, President of the World's Fair, has been asked to greet the leading automotive engineers of the world, and to officially open the Congress.

Committee work to plan for the best technical program in the 33-year history of the Society has already begun—a full year before the Congress convenes. The sessions will report engineering advances throughout the world in design, manufacture, and operation of automobiles, aircraft, trucks, buses, and rail-cars; and also fuel and lubrication refining.

Following the New York sessions, delegates will attend the 26th Annual 500-Mile International Sweepstakes at the Indianapolis Speedway, May 30, spend the three following days inspecting principal automotive plants in Detroit, and close the Congress with three days of technical sessions in San Francisco, where they will have an opportunity to visit the Golden Gate Exposition.

Plans for the Congress are being made under the general direction of the Society's President, C. W. Spicer, and Executive Committee on Meetings, which is composed of Ralph R. Teetor, Past-President, chairman; Dr. G. W. Lewis, National Advisory Committee for Aeronautics, Vice-Chairman; Paul G. Hoffman, President, Studebaker Corp.; O. E. Hunt, Vice-President, General Motors Corp.; and Fred M. Zeder, Vice-Chairman of the Board, Chrysler Corp.

●

Novel Method of Waterproofing Paper

TO meet the frequent need to waterproof and strengthen paper without the use of paraffin or wax, the following simple method is worth keeping in mind:—

Using one part of glycerine by weight to one part by weight of gelatine and four parts by weight of water, cover both sides of the paper with the warmed solution. Then after a few minutes, before it is fully dry, place the paper in a solution of seven and one-half parts by weight of formaldehyde with fifty parts by weight of water.

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Only authorized Webster-izing Agencies can offer this Double-Guaranteed process to extend your retread—recap mileage to *new or better than new-tire mileage*. WEBSTER RUBBER COMPANY, WARREN, OHIO.

DeVilbiss Offers Free Paint "Schools"

THE DeVilbiss Company announces the schedule of their training school for the last half of 1938. This school is open to industrial painters, master painters, automobile refinishers, and all others interested in learning the technique of spray-painting, and the use and care of spray-painting equipment.

The training period lasts for one week. Classes will start on the following dates: October 3 and 31 and November 28. Special rates in Toledo hotels and boarding houses near the plant have been secured by the company for men attending the school. These classes have been well attended in the past because of the facilities for study, otherwise unobtainable, offered by the DeVilbiss Laboratories.

It is advisable to enroll in the school as far in advance as possible, since the size of the classes must be limited, and since there will be no training periods other than those announced. Complete information may be obtained by writing The DeVilbiss Company, Toledo, Ohio. . . . Mention of FLEET OWNER always helps.

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Private Carrier Organization Well Under Way

REPRESENTATIVES of thirty different industries, met in Washington recently, and formed an organization to represent manufacturers, farmers, merchants and others who own and operate the 3,500,000 trucks in this country which are *not* for hire.

The meeting was marked by repeated declarations that extreme restrictions and regulations covering use of private motor trucks threaten efficient business operations. It resulted in creation of the National Council of Private Motor Truck Owners, with the new organization's formally expressed purpose being to promote "the safe and economic use of highway transportation by agriculture and industry in private motor trucks."

The following were named members of the Board of Directors: P. Arnold Anderson, Private Motor Carriers Bureau of California, San Francisco, California; James C. Bennett, Automotive Council, San Francisco, California; Fred Brenckman, The National Grange, Washington, D. C.; H. E. Bucklew, Director, American National Laundry Association, Joliet, Illinois; Cecil H. Fisher, Institute of Makers of Explosives, Wilmington, Delaware; N. W. Ford, Manufacturers Association of Connecticut, Hartford, Conn.; Robert C. Hibben, International Assn. of Ice Cream Manufacturers, Washington, D. C.; O. M. Kile, Mail Order Assn. of America, Washington, D. C.; F. E. Mollin, American National Live Stock Assn., Denver, Colo.; R. J. O'Hare, International Assn. of Milk Dealers, New York, N. Y.; L. F. Orr, Pet Milk Company, St. Louis, Mo.; W. H. Ott, Kraft-Phoenix Cheese Company, Chicago, Illinois; F. E. Packard, Chairman, Central Division, American Petroleum Industries Committee, Chicago, Ill.; John B. Pymer, American Bakers Association, Baltimore, Maryland; H. E. Pugh, United States Brewers Association, New York, N. Y.; John F. Winchester, American Petroleum Industries Committee, New York, N. Y.

Several speakers emphasized the fact that the states have adopted widely varying sets of laws and regulations affecting use of private vehicles. Costly difficulties in moving goods, particularly those which cross state lines, were cited as rising from this situation.

One of the initial activities of the organization, it was stated, will be to gather facts relative to effect of federal regulation of hours of service and standards of equipment and to present those facts at forthcoming hearings to be held by the Interstate Commerce Commission.

The Council also will study laws and legislative proposals that might be construed as bringing the private truck operations under the type of regulations exercised over for-hire carriers by state commissions.

Presentations of related material will be made before State Legislatures and regulatory commissions.

Among business and industrial groups represented at the meeting were the following: agriculture, bakeries, food products, distributors, beverage bottlers, manufacturers of explosives, cleaners and dyers, brewers, retail stores, petroleum, automobile manufacturers,

dairy products, mail order houses, ice cream manufacturers, live stock producers, and laundries.

Headquarters of the Council will be established in Washington, it was announced. Temporary offices are at 366 Madison Ave., New York, N. Y.

•

"Curb Braking" Is Most Common Tire Abuse

ONE of the worst and most common driving faults of the average driver is jamming his tires against curbs through careless parking, research workers of the Fisk Tire Company report.

Between 60 and 70 per cent of all four-ply passenger tire failures may be traced directly to fabric-bruises caused by abuse. The danger, they say, lies in subsequent blow-outs, which may wreck a vehicle and bring personal injuries and death.

Tire failure is not the sole damage. Often the jar will knock front wheels out of alignment, resulting in repair expense and rapid and uneven tread-wear. Avoid hitting curbs, large stones, and road holes, they advise, if you want to increase tire safety and wear.

•

New Fire Trucks Use Packard Motors

PACKARD Twelve and Super Eight engines are now being used as power-plants for a new type of fire engines manufactured by the General Fire Truck Corporation, Detroit, Mich. A new low weight-to-power ratio is claimed.

Several different types of machines are now being turned out with the Packard engines. Pumpers are made with 500, 750 and 1,000 gallons per minute capacity.

Before being accepted for fire department equipment the new fire engines had to pass rigid endurance tests of the National Board of Fire Underwriters. In addition, individual acceptance tests are given each piece of equipment by the city purchasing it.

Tests conducted for the National Board consist of 12 hours continuous running at the full rated capacity of the pumper. Both engines passed these tests easily and with a wide margin of unused power, it is said.

In a city acceptance test conducted at Santa Barabara, Calif., one of the fire engines, in addition to pumping tests, was given a road performance test. With a full load, consisting of hose, ladders, 400 gallons of water for booster pumps and a full crew of firemen, the truck reached a speed of 75 miles per hour. From a standing start it accelerated to 46 miles per hour in 500 feet and reached a speed of 15 miles per hour in 160 feet on a twenty-two per cent grade, according to Packard engineers.

•

Chrysler Plant Has Excellent Traffic Record

COMPLETE freedom from traffic accidents within the factory buildings and grounds during a period of over 2½ years, is the remarkable record made by Chrysler at its Detroit manufacturing and body-building plants on East Jefferson Avenue, Detroit, Mich.

To appreciate fully what this means, it is necessary to scan a few figures: On an average day with production at normal, a total of over 3,600 miles is covered by vehicles operating within the gates, divided among new cars, vendors' trucks, material transport trucks and the inter-plant transportation fleet. Approximately 14,000 employees are exposed to these vehicles and of this number some 3,500 are classed as pedestrians

You'll Want to Use the Zephyr CLEARANCE Lamp

ATTRACTIVE—Modern design makes this new lamp ideal for use as fender lamp—or as a clearance or 3-in-line light on trucks.
ECONOMICAL—Gives 50% more light—uses 50% less current. Equipped with 1½ cp bulb.
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YOU CAN'T MAKE $400 A YEAR per truck ANY EASIER!

IT'S GOOD BUSINESS TO USE RECORD MASTER

It's good business and it pays marvelous dividends to use HERCULES RECORD MASTERS on all your trucks. It's *not* an expense—it's not an experiment. You take no chance. RECORD MASTERS have PROVED that they will save many times their cost in one year's time through their accurate, visible check on lost time—time lost unintentionally as well as *idle* time. RECORD MASTERS are no experiment for you, because already trucks all over the country are equipped with them and the operators will tell you that their RECORD MASTERS put as much as $400 each year into profits that would otherwise be *waste!*

RECORD MASTERS are quickly and simply installed with two bolts or screws. A waxed paper chart is inserted behind the clock and the unit is locked to prevent tampering. Then, during the day, each stop and movement of the truck is *automatically* recorded. At the end of the day or week, you can inspect the chart and check on lost time. When you can SEE facts, you can deal with them.

WRITE FOR FOLDER

Let us tell you the many exclusive advantages offered you by the use of RECORD MASTERS. Don't go another month without this simple, accurate, PROFITABLE unit on each of your trucks. Write us TODAY!

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HOTEL PLANTERS
First
WITH AIR CONDITIONED GUEST ROOMS
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350 ROOMS WITH BATH FROM $2.50
One of the 16 ALBERT PICK HOTELS
Hotel Oliver

walking in and out of buildings, crossing roadways and aisles where cars, trucks and tractors are constantly moving.

The record becomes more impressive, too, when compared with that of some typical American cities of approximately the same population as the normal working force in the Chrysler plant. In six such cities, selected at random, the smallest number of accidents reported in the year 1937 was 140, and the greatest 234, with a minimum of 30 partial disabilities caused by the accident and a maximum of 177. There were 16 fatalities in the six cities during the year.

An educational program conducted by Oscar F. Lehman, plant safety engineer, is responsible for Chrysler's fine safety showing, plus fundamentally sound safety engineering and strict enforcement of the rules. Under the head of safety engineering may be listed a scientific study of the causes of accidents, proper planning, traffic control, construction, maintenance and traffic regulations.

Under education come the instruction of individual employees as to the nature of the traffic hazards and how to avaid them; arousing in individual employees an appreciation of the need of carefulness, which is done through lectures to employee groups and through motion pictures; the distribution of a booklet of safety rules and regulations; and the careful instruction of all drivers employed by the company.

All drivers are required to have licenses, issued by the company, and must pass a physical examination. Minor violations of the rules bring discipline; flagrant violations result in discharge. Posters covering both plant safety and public safety are issued weekly for the bulletin boards and safety articles are printed at frequent intervals in the Company's monthly industrial magazine.

Enforcement deals with compelling the heedless minority to observe safety rules that the majority have voluntarily adopted. In general, employees prove very amenable to the rules but where they are not, the management resorts to prompt and effective discipline. Thus it was possible, with vehicles covering 3,500 miles per working day on 3½ miles of pavement within an enclosure of 75 acres, to compile a flawless record. A very liberal interpretation of what constitutes an accident is in effect, too. Even a minor collision would have marred the record.

Obviously, Chrysler employees, 33½ per cent of whom drive their own cars to and from work, generally apply the same caution and good judgment on the city streets as they do within the plant, with a result that their record in keeping out of accidents is a highly creditable one.

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Everything at Your Fingertips
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Write Manager for Special Rates (with or without meals) for week-end visits to New York City.
NEW YORK

Cleaning Windows After Spray-Painting

CLEANING the windows of vehicles that have been spray-painted is often a difficult problem. In this connection, therefore, the successful results reported by a large Middle Western electric railway and light company (Milwaukee Electric Railway and Light Company), through the use of a glycerine solution, are of general interest.

Previous to the use of the glycerine solution, a variety of other solutions were tried. At first the windows were coated with a solution of calcium chloride before spraying, but it was found unsatisfactory in that on some days the calcium chloride solution ran over the surface to be painted, necessitating extra time and labor to wipe it off, while under other weather conditions it dried hard, thus not only increasing the cost of the window cleaning through difficulty of removal but often resulting in window breakage.

Other solutions proved unsatisfactory for other reasons, such as disagreeable odor. Finally, a solution of glycerine and whiting was tried. This solution was found to act the same under all weather conditions, with a marked decrease in time and effort to clean the windows.

To determine more exactly the overhead saving with the glycerine solution, the company made time-studies on several types of cars. One type of car, which previously required 13 hours, required only 9, with other types showing approximately the same results. While the initial cost of the glycerine solution is higher than that of the calcium chloride solution, the company estimates that the saving in window breakage alone covers the additional cost.

●

Petroleum Salesmen Are Safe Drivers

PETROLEUM salesmen making their rounds in automobiles last year hung up an enviable record of only one accident for each 97,115 miles traveled, according to the American Petroleum Institute's Department of Accident-Prevention. The salesmen of the oil companies report all accidents including those which involve only minor damage, as dented mud-guards.

●

Ford Lauds S.A.E. "World Congress"

PRAISING the plan of the Society of Automotive Engineers for a World Automotive Engineering Congress, to be held May 22 to June 8, 1939, in New York, Indianapolis, Detroit and San Francisco, Henry Ford recently accepted the Honorary Chairmanship of the Society's advisory board of world automotive leaders.

The Society, he said, was "doing a fine job in bringing together the best technical reports of automotive developments throughout the world."

Opening for a five-day technical session and dinner in New York on May 22, 1939, American and overseas members will have an opportunity to see the New York World's Fair.

The Congress will adjourn to Indianapolis, to see the Annual 500-mile sweepstakes on May 30, and will be entertained by the Indiana Section of the Society at a dinner. The delegates will use air-conditioned Pullman cars during their overnight stay, and will proceed to Detroit, where they will visit automotive factories and will be given a dinner by the Detroit Section.

The San Francisco three-day technical sessions will open June 6 and visitors will have an opportunity to see the Golden Gate Exposition there.

Detailed plans for the technical sessions and other

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● A modern luxurious hotel in Chicago's Loop, with every room completely refurnished and redecorated and with radiantly new public space. Yet rates are amazingly low.
● NEW POPULAR PRICED RESTAURANT
● MODERN COCKTAIL LOUNGE
LA SALLE & VAN BUREN STS.
HOTEL FORT DEARBORN
OPPOSITE LA SALLE ST. STATION
Chicago

events of the Congress are being shaped up rapidly under the direction of C. W. Spicer, President of the Society; Ralph Teetor, Chairman of the Meetings Committee; and Committees representing the 10 Professional Activities of the Society, according to John A. C. Warner, Secretary and General Manager of the Society of Automotive Engineers.

●

Excellent Safety Record in A.C. Plants

WHAT is believed to be one of the most significant safety records in American industry was created recently by the maintenance department of the AC Spark Plug Division of General Motors, when the several hundred men employed in that department passed the one-million-hour mark without an injury of any kind. The number of "safety" hours worked is still unbroken and continues to increase.

Because maintenance departments generally account for such a large percentage of industrial accidents, F. O. Tanner, General Motors vice-president sent a telegram of congratulations to L. C. Goad, general manufacturing manager of the AC division upon the outstanding accomplishment, which was made over a period of 597 work days.

●

Skidding Increases with Speed, Tests Reveal

IMPORTANT findings from an automobile safety standpoint have been revealed, as the result of a study of 20,000 tests on skidding tendencies at Ohio State University.

Among the findings are:

1. Regardless of tire tread design, adhesion between road and tires decreases with the speed of the vehicle, reducing resistance to skidding and increasing the difficulty of bringing the car to a stop in an emergency.
2. This effect is most pronounced from a braking standpoint.
3. A light sprinkle causes the average road to be about one-third more slippery than a drenching rain.
4. Sliding the wheels of an automobile when applying brakes results in the vehicle traveling much farther before it is brought to a stop.
5. Tires which have been worn smooth may as much as double the tendency for wheels to slide when brakes are applied.
6. Increasing or decreasing tire pressures on ice or in snow does not help traction, as is commonly supposed.

The tests were conducted under the direction of Professors K. W. Stinson and C. P. Roberts in cooperation with tire companies and highway commissions of several states. In these tests a two wheel trailer, with a Linderman hydraulic brake on one wheel, was used, the other wheel running free. The trailer was attached to a tow-car through a diaphragm connection which translated the effort required to pull the trailer, into hydraulic pressure. The latter in turn was recorded on instruments within the tow-car.

The findings are regarded as particularly important in connection with car-stopping ability. Taking an Ohio State test at random, it was found, for example, that with the wheels sliding (by locking the brakes as for an emergency stop) it took a 24 per cent greater distance to stop the car at 20 miles per hour, 40 per cent more at thirty—with a jump to 57 per cent more distance for an increase of only five miles per hour beyond that point (35 miles per hour).

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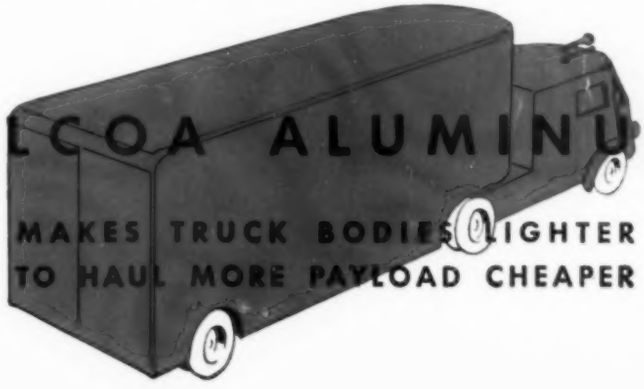
THE DINOSAURS of ancient days disappeared because they were too heavy to survive. Today Truckosaurs (trucks with bodies which are too heavy because they are made of heavy materials) are disappearing. In their place you find trucks with light bodies built of light, strong alloys of Alcoa Aluminum. Light bodies carry more payload. Costs are reduced.

An extra margin to meet stiffer, modern competition, extra economies to offset present-day higher costs — those are the goals of live management today.

Light truck bodies constructed from strong, light alloys of Alcoa Aluminum provide a way. Aluminum offers the obvious saving of lightness, and additional advantages based on its inherent physical characteristics. The list printed at the right is only partial. We will be glad to send you a handbook, "*Alcoa Aluminum for Truck Bodies*," which tells the story in full.

ALCOA



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MAKES TRUCK BODIES LIGHTER
TO HAUL MORE PAYLOAD CHEAPER

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STRENGTH WITH LIGHTNESS results when you build with light, strong alloys of Alcoa Aluminum. The material itself is light, so sections can be made thick, stiff, and strong. We cooperate with body builders to help you get the best equipment.

LONG LIFE — SALVAGE VALUE — Often Aluminum bodies outlast several chassis. Finally, as salvage, they return far more.

MAINTENANCE ON THE OUTSIDE — Paint holds to Aluminum better, lasts longer, so units are more attractive.

COST — A per-pound breakdown of hauling cost reveals the reasons for using Aluminum. Usually it shows that extra capacity cuts costs to the degree that savings from Aluminum pay the extra first cost in less than one year.

ACTUAL RECORDS OF COSTS showing the experience of users are given in the free book, "*Alcoa Aluminum for Truck Bodies.*" Send for a copy. ALUMINUM COMPANY OF AMERICA, 2161 Gulf Building, Pittsburgh, Pa.

NOW.. EVEN GREATER PISTON RING EFFICIENCY

Read these facts about GRANOSEAL *and* GYREX FINISH . . . *exclusive features of* SEALED POWER "STA-TITES"

For many years Sealed Power "Sta-Tites" have won the commendation of fleet engineers for their sterling performance. Test after test has proved they restore oil economy in remarkable fashion—that they increase pep and power, assure 40,000 to 50,000 miles of thrifty driving satisfaction.

Now, however, fleet engineers and fleet mechanics are discovering that Sta-Tites are giving even superior performance. Two new, exclusive Sealed Power features are responsible: Granoseal Surface and Gyrex Finish.

Granoseal is a chemical process producing on the surface of piston rings a ferrosoferric phosphate. This surface is non-scuffing, oil absorbing and wear resistant.

Gyrex Finish is a new finish produced by Gyromatic Grinders on the sides of piston rings. Gyrex Finish eliminates ring twist, warp, dish.

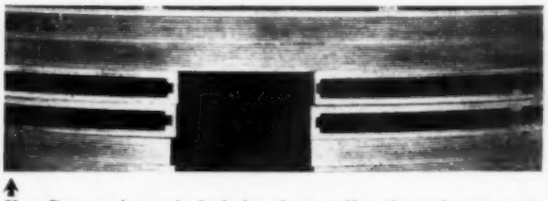
Sealed Power Rings for Every Job!

Here's a fact to remember: on rebore jobs, use either Sealed Power conventional or Sta-Tite Rings. (And Sealed Power Pistons of Lo-Ex, too.) But for that in-between ring change—when you want to get 40,000 or 50,000 miles before reboring, use Sealed Power Sta-Tites always.

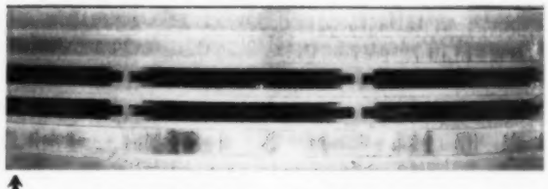
SEALED POWER CORPORATION
MUSKEGON, MICHIGAN
Canadian Factory, Walkerville, Ontario
Pistons, Pins, Expanders, Valves and Cylinder Sleeves

Photographs show how Granoseal Protects Rings

The two photographs reproduced below show untreated rings and Granoseal rings after tests conducted under precisely the same conditions: both sets were run without break-in in freshly honed bores, full throttle, full power, for one hour.



How Granoseal rings looked after the test. Note the tool marks still visible—including normal wear and proper seating action of rings.



How untreated rings looked after test. Note how rings are scuffed and worn. This condition results in higher oil consumption—less power.

How Gyrex Finish ends Ring Twist, Warp, Dish

Above two rings, one with Gyrex Finish, one with ordinary Concentric Finish. Gyrex Finish is made with short cuts across the side of the ring instead of long, continuous cuts following ring contour. Gyrex is finer, more velvety. Eliminates twist, warpage, dish hitherto unconquerable enemies of piston ring performance.

SEALED POWER PISTON RINGS